# The Builder.

VOL. XVII.—No. 835.


*Sewerage, Cesspools, and Ventilation. Windsor.*

PUBLIC sewerage progresses very slowly, and some of the work will, we fear, prove inefficient. Large sewers have been put down where smaller sewers would have answered better, and sewers are projected of dimensions considerably beyond the requirements of the districts. The cost of sewers increases about as the squares of their diameters; for instance, if a sewer of 2 feet diameter cost 10s. per yard lineal, a sewer of 4 feet diameter will cost about 40s. per yard lineal; or, in other words, 400 yards lineal of sewer 2 feet in diameter may be put down at the cost of 100 yards lineal of 4 feet in diameter; and if the sewer of the lesser sectional area will remove all the sewage, it is not only four times cheaper, but very much better than the larger and more costly structure, because the ordinary flow of sewage is more concentrated, and there is less space in which sewage gases can be generated. If the large sewer be egg-shaped, the sewage will pass more rapidly, and leave less of deposit, than in a broader bottomed sewer; but there will be the greater air space: if the invert be broad and flat, or if even the section be a circle, there will be deposit, stagnation, and accumulation of foul refuse in such sewer.

There are many miles of sewers in this metropolis far too large for the amount of sewage, and the consequences are stagnation, deposit, accumulation, ultimate choking, and great nuisance and danger to health. We may refer to the earlier reports by the Commissioners of Sewers, as also to reports by sundry Government commissions. Into the disputes of rival engineers it is not our intention to enter,—are they not recorded in "blue books" and in counter—that is, rival—reports, in which they may be found by those who desire such reading? We have scrupulously abstained from the sewers question contention, confining ourselves to facts, and only stating these as they appeared calculated to be generally useful.

We recently drew attention to the state of the sewerage in Windsor, and inquiry has confirmed our former statement. Some of the public sewers in Windsor and Eton, along the lower levels, are too large, and, consequently, afford space for the generation of foul gases of decomposition, which gases will rise to the upper parts of the system if not previously liberated. As we remarked in our first notice, Mr. Turnbull has protected the Castle both by flaps and by surface ventilating grates and arrangements; but the Castle sewers and the town sewers are in some respects connected and complicated, so as to render it almost impossible to protect the whole of the Crown property from the effects of negligence by the Local Boards of Windsor and Eton. Public sewers were formed in the districts under the charge of these Boards some ten years since; but there are many cesspools in existence to this day, and very many of the "private" or "house drains" have been carelessly and badly constructed, and are in a sad state. We do not say that *all* the recent cases of fever in Windsor have been due to foul air from festering cesspools, choked drains, and stagnant sewage; as foul air may be produced by overcrowding, by defective ventilation, and by the proximity of decaying refuse of any sort. Fevers may occur in cellars, as in Liverpool; or in attics, as in Glasgow, Edinburgh, and other places. There may be sewers to affect cellars, but attics, ten stories up, are tolerably removed from such influence. Those who even expect the best planned, and most perfectly constructed sewers and drains to *prevent* all fevers, will be disappointed; as diseases of this class result from many other evils,—overcrowding, defective ventilation, unwholesome food, starvation, mental anxiety, and more causes than we can enumerate.

Efficient sewers and drains will ever be the *foundation* of sanitary improvement; but there must be a superstruction on the "foundation," and there must also be unceasing attention. Sewers and drains may be so constructed as to act without the aid of men to cleanse them. We have an example of this in the city of Carlisle; where, although the district is flat, and the outlet is liable to be back-watered and flooded, the sewers and drains have acted efficiently, we learn, from the time of their completion (some four years ago) to the present date, without the aid of manual labour within them, and they are clean at all times. There is the power of flushing, and this is occasionally used. In Birmingham, in Cardiff, in the metropolis, and in some other towns, men spend their lives in the public sewers—at, of course, a great annual cost to the ratepayers—and what is far more to be lamented, at the sacrifice of their own health and lives.

The progress of the sanitary question in England, is watched with great anxiety by the whole of the civilized world. Our big-endian and little-endian disputes have sadly troubled many inquirers, and we fear have hindered some, while false examples have been followed in distant parts of the world. Some American engineers have, however, visited this country, to examine for themselves. Mr. Chesborough, of Chicago, has reported to the authorities of that town since his return, and is now carrying out a system of sewers on a plan devised after full examination into the whole question. Earthenware pipe sewers will be adopted for all branches. The engineer in New York is also using earthenware pipes to a large extent. We also happen to know that earthenware pipes and soil-pans are sent out and are disposed of and used in large quantities in Australia. The make of earthenware sewer and drain pipes in England alone is upwards of 12 miles lineal per week, and of soil-pans about 1,000 per week; that is, 624 miles of sewer and drain-pipes, and 52,000 soil-pans per annum. Land drain-pipes are of course not included. If there be any truth in sanitary science, we ought surely to be improving. Much of the private work is no doubt badly executed, as at Windsor; but we hope for better things in time. At present health and life are at a discount with many public bodies, or we should not have a retention of cottage cesspools advocated, as in Manchester and in many other towns, practically by neglect, though not actively by legislation. The Registrar-general will some day startle the public from its apathy when the next epidemic sweeps through the land, and Government may even learn to value the bugbear charge of "centralization" at its proper worth. In Newcastle-upon-Tyne upwards of 2,000 lives were sacrificed to cholera in 1853, at a cost of some 40,000*l.* to the community, and this town remains as liable to cholera as before; the only improvement was made by the great fire subsequent to the cholera, in consuming many wretched habitations of a crowded district. We are not advocates of centralization as practised on the Continent, but of wise government in the truest and fullest sense of that word under its most liberal interpretation. "*Government*" cannot mean neglect of human health and life, as the strength and the glory of a state consist in the numbers, wealth, and health of its inhabitants. Human life and the well-being of a people must, therefore, be the first and most sacred duty and care of a just government. Our parish Dog berries and vested interests may cry out centralizatian! centralization! but if loss of health, loss of life, increase of poverty, pauperism, and crime can clearly be shown to spring from local inefficiency or local apathy, a superior power must be created to step in and avert so much human misery. We must live beyond the doctrine of *laissez faire*, and neither pander to any class interest nor fear ignorant exclamations. Those who read our pages regularly will not be ignorant of the scenes of wretchedness, vice, and misery in this metropolis, and we think our conclusions cannot be disputed, namely, that the poor have no power to help themselves, and that therefore either the Imperial Government or a local government must step in and remove the causes of evil. The poor cannot build houses, regulate ventilation, sewer towns, scavenge streets, or even secure wholesome meat. We do not say, nor desire, that a central power shall be enabled to step in and do such things; but we do say, that, after the central government has created a local power, it ought to establish and retain power sufficient to enforce necessary movement, and give the superintendence requisite to secure something like honest efficiency. Government regulates labour in coal-mines and in cotton factories, with advantage to the whole community; but miserable houses, no sewerage, and defective sewerage, work incalculably greater social evils than coal-mines and cotton factories, because the first are general—as wide as the empire—and the latter are local, and therefore limited in their power of mischief. Bad government implies human misery (preventable disease), pauperism, and crime. We have shown that these evils exist in fearful and in terrible realities in this the greatest and by far the wealthiest city or metropolis in the world. That the Imperial Government is expected to assume certain public duties, we learn from the verdict in the recent accident case at the Polytechnic.

The evils of cesspools have been over and over again commented upon by us, and yet we find cesspools retained even where public sewers have been carried out. There is also another evil of great magnitude, more frequently committed than it is easy to believe, namely, leaving house-drains, into which closets and sinks send all the refuse of a large family, unconnected with the street sewer, until the whole basement and subsoil are flooded and saturated with putrifying refuse. This has been the case in London, and, no doubt, many such cases of gross neglect are now accumulating their full measure of mischief. If the residences of our metropolitan hospital fever cases were examined, we should find cesspools full and foul; choked drains; and drains unconnected with the street-sewers. Cleaning such choked drains, and making a connection with the public sewer, do not sweeten the tainted subsoil: the whole floor should be taken up to remove as much as possible of the foul material, and the space made good with concrete. There are frequent complaints of bad smells being perceived from drains, from closets, from sinks, from street gullies, and there is a loud outcry for "trapping." But trapping alone is a delusion and a snare. Foul gases are not destroyed by such means, but are concentrated,—made far more deadly, and are forced into houses through every rat-hole, crack, or imperfection in sewer, drain, wall, and floor. By far the safest remedy is external ventilation, free and abundant at any point where there is the least chance of harm, remembering that foul gases admitted to the open air are diffused into space, and seldom injure, but that foul gases admitted within houses are diffused through the rooms, and injure at all times, but especially at night and during sleep. We often read that gullies have been removed or trapped, because foul gases escaped, to the annoyance of some one; and we have learned that the Queen, in driving about Windsor, detecting a stench from some of the gullies, ordered them to be trapped. We most sincerely hope her Majesty, at the same time, ordered better and fuller ventilation to be provided; as, also, the sewers to be examined, cleansed, and improved. If there are foul smells from any sewers, sinks, or closets, there is something wrong, requiring constructive improvement, and full and free external ventilation. A ton of gunpowder permanently stored beneath any dwelling-house would be neither safe nor desirable, but it might work far less

mischief than foul sewers, with foul drains, thoroughly trapped. We would prefer the gunpowder, which might go off once, to the fever poison, which is acting always.

## CONSTRUCTION OF STONE STAIRCASES; AND THE ACCIDENT AT THE POLYTECHNIC INSTITUTION.

IT is a generally received opinion, that the stability of a stone staircase, fixed into a sound wall, depends in no small degree upon the gravitating support it receives from the lower step; and that each step, resting upon the one underneath, assists in maintaining the stability of the whole. No doubt this idea is correct to a certain extent: all the steps assist to support, and uphold each other; and from examining the remnants left in the wall at the Polytechnic, there is every reason to believe that that staircase was thus constructed. I have no hesitation, however, in saying, that in such a staircase, or any other in which the stone is of a proper quality, and the fixing performed in a workmanlike manner, each individual step would not only bear its own weight, but also any reasonable load that is ever likely to be put upon it; and this entirely independent of the steps either above or below it. During my practice, I have had to insert a new step in place of one broken; and, in a particular case, three steps were broken off close to the wall, by a weight falling upon them from a considerable height. This work was restored by taking out the broken ends, and sliding in the new steps from the end under the iron rails, and pinning into the wall as before; the joggled joints being very correctly fitted previously, and the entire staircase, I have reason to believe, was as sound and secure as before the accident.

In the absence of positive evidence, it is extremely difficult to determine the precise place on the staircase at the Polytechnic where the accident commenced, or to say what gave rise to the first break, or starting point; and some difference of opinion may probably be entertained respecting this particular part of the inquiry. On carefully examining the top of the staircase, it appears that the stone landings at that part have been improperly joggled. This fault arose, no doubt, from some mistake of the workman, or of two masons employed on different stones misunderstanding each other, and making a joint with both stones grooved or channelled, instead of one having a projection, and the other being worked hollow, to receive it. This top landing had, therefore, little or no support from the joggle to the adjoining stone, and appears evidently to have been naturally weak at the fracture, in consequence of fossils or shells occurring at that part, which are of a different substance to the great mass of the stone; and to which the ovoid, or oolitic portion is but imperfectly or slightly united: hence, as several of these fossil shells occurred near to each other, the rudiment of a rend or fracture was there; and, with any unusual concussion, it is almost certain that the stone would break at that particular part; and, in all probability, such defects in the landing might not be observed until after the separation had taken place.

On viewing the staircase, in its present condition, the first impression on the mind of an observer would most likely be directed to the circumstance of cutting away the worn part, and thereby weakening the steps, for the purpose of inserting the cast-iron trellis treads; and it would be unreasonable, as well as inconsistent, to suppose for an instant that the strength of the steps had not been, to some extent, lessened by this proceeding. But before we arrive at the hasty conclusion, that weakening the steps, to a certain degree, was the sole cause of the accident, we should fairly and deliberately take into account collateral circumstances which bear upon the subject.

The absence of a proper joggle, and the weak part of the stone landing at the top of the stairs, was, I think, as I have elsewhere said, the first cause of the accident. When this top stone gave way a large portion of its weight was instantly thrown upon the step immediately beneath it, and for a moment might probably hang with its entire weight to the iron railing, which was properly inserted and run with lead into the stonework of each step. The first step being broken, would communicate much of its weight to the one beneath, before it was completely liberated: the same would occur to the next, and the one after, and so on to all the others. The iron railing, which was firmly attached to the stones, must soon have been torn from its junction at the upper part, and would thus be entangled or threadled amongst the steps, thereby adding, by its weight and tenacity, in no small degree, to the general destruction.

It is by no means surprising that all the steps should have broken exactly at the part near the wall, where the whole thickness of the original solid step is left, and where the iron trellis is inserted. It would have baffled all my theory and practice had they broken at any other part. This particular place in each step acted as the starting point—the commencement of a rend or fracture, somewhat analogous to the effect of a glazier's diamond on glass, which, supposing the glass to be an inch thick, will not penetrate to more than about the thousandth part of an inch, and in this state the glass is scarcely appreciably weakened; yet a few sharp blows or concussions with a hammer will cause it to separate exactly at the scratched line. The masons who pave our footpaths with Yorkshire flagging nick the stone with a chisel and hammer, about a tenth of an inch deep, where they wish to separate it, and then a few blows with a hammer divide it along the line indented. In the case of the stairs now under consideration, it was proved, that only a few minutes before the accident, they bore a weight of human beings very far exceeding the weight or number of persons upon them at the precise moment of the disaster; but it was some fatal blow, sudden jar, or concussion, which set the whole affair in action.

We will now consider what might have been the effect if the assumed cause, namely, the failure of the top landing, had operated upon the same steps before the iron trellises were introduced, even when the stones were but recently erected, before they were appreciably worn. We are justified in concluding that the steps, as originally constructed and fixed, were sufficiently strong for all contemplated purposes; because the staircase had stood the test of crowded meetings, during about twenty years, without any apparent defect, except that produced by fair and reasonable wear. Unfortunately, it happened that several circumstances of an untoward description were combined in the same stone, at the most vulnerable part of the staircase; and at a particular moment of time, this weak point received a vibratory shock or concussion, which from the starting point, set off the whole disaster.

Artificial substances, such as different kinds of cements, and the various metals, which, in their natural state, are almost invariably found in the earth mixed with sulphur or other material, may be homogeneous and uniform throughout their entire mass: hence, well-conducted experiments on such substance are likely to be very useful in arriving at conclusions relative to their strength; but the longer my experience extends, and the more I investigate the subject of experimenting on the strength of natural substances, such as building-stones, and more especially that of Portland stone, the greater are the difficulties which present themselves before any formula can be attained that will not lead to very erroneous conclusions. No two pieces of Portland stone the size of the steps of the Polytechnic staircase can be found that do not vary considerably in their texture at different parts, in the hardness, soundness, number of fossils, and many other peculiarities well known to a mineralogist, and also to an intelligent working stonemason: these remarks apply with equal force to different parts of one and the same block. No dependence should rest on a single mechanical experiment upon Portland stone. If a formula be required, it can only be obtained by at least six or eight experiments, performed in the most careful manner, and then taking the average or mean proportion of the entire number.*

Two experimental steps were prepared at a builder's, in Tottenham-court-road, expressly for the purpose of testing the strength of Portland stone, as applied to steps: they were wrought in the form of winders, one with an iron trellis let into it, the other without, so as to resemble as nearly as possible those at the Polytechnic; and after being properly pinned into a wall, they were both loaded uniformly over their surfaces until they broke. That in which the iron was inserted, broke with 5 cwt., the other with nearly 13 cwt. These tests might have been satisfactory provided the stone could be viewed as a substance of one uniform homogeneous quality throughout its entire mass, but, as already stated, such uniformity of structure rarely or never is found in Portland stone. Long blocks of such material are almost invariably obtained from the quarry in an upright position: the top end is always hard, strong, and durable, when exposed to the weather: the lower end is soft, much weaker, and is very likely to decay rapidly, under atmospheric influences. Hence, it is of considerable importance, in a staircase with long steps, that they should all have the strong ends of the stone towards the wall, where there is the greatest amount of leverage. In the case of two of the stones, prepared expressly for experimenting upon, they were both sawed out of one block, of an oblong form, and so contrived, that the piece was sawed nearly on the diagonal, to form winders round a semi-circular well-hole: the broad end of one step, and the narrow end of the other, being of the hard and strong part of the block; one of the steps was necessarily obliged to be turned end for end; therefore one had the hard end pinned into the wall, and the other the soft and weak part of the stone in the wall: consequently, other conditions being equal, the two steps, when loaded, broke with very unequal weights; therefore such an experiment would be no criterion of comparative strength.

Another experiment was tried with a step (having an iron trellis let in) rebated on to a landing beneath it. This step, and the landing together, bore a weight of 26½ cwt., during two or three hours, without breaking: having no more weights at hand, it was left, thus loaded, and broke when no one was by, probably in consequence of some carriage passing through a mews adjoining, and causing the ground to vibrate. This last experiment proves that very considerable strength is obtained by the steps resting partially upon each other. These various tests or trials were made with new stone, thoroughly wet; consequently not so strong as if dry and well seasoned, which renders the stone stronger than when fresh from the quarry.

A staircase is one of the most indispensable objects belonging to almost every description of building; therefore, it should be well understood, and safely constructed, especially in public edifices, where great crowds may occasionally be expected to assemble. Since the accident at the Polytechnic, numerous proposals have been suggested for improvements in the safety of this important feature in practical architecture: the most general proposition is, that the steps should be supported by a wall at each end,—a very safe plan no doubt; but, in practice, attended with many difficulties, especially those of space, cost, light, ventilation, &c. Another scheme is, that if the steps are only in the wall at one end, the other end should be supported by iron columns raised from the ground. This, I must confess, would be a rather dangerous construction; for, unless the iron supports be in close contact with the stone, they will be useless; and if they do touch, or are the least approaching to tight, they may, by variation of temperature, which expands the metal, be raised, in the space of 20 feet or 30 feet high, at least a quarter of an inch: if the steps are properly fastened at the wall end, and such an expansion will be quite sufficient to hoist up the steps, and break them off close to the wall.

During the inquest at the Polytechnic, it has been stated that, "as a rule, cylindrical staircases having open well-holes, together with a great width of step, supported only at one end by insertion into the wall, are greatly to be condemned, as highly dangerous." In answer to this fearful assertion, I may confidently state, that, during the long period of half a century, I have been practically and theoretically acquainted with all matters relating to the construction of new, and reparation of old staircases: I have also been long associated in business, and on friendly terms with an unusual number of eminent architects. It has also been my good fortune to be honoured with invitations to attend nearly all the meetings of architects and engineers during the last twenty-five or thirty years. Nevertheless, I cannot recollect hearing of a single instance of a stone staircase falling or breaking down, either in a public or private edifice. In offering this statement, of course I do not include cases where the building has been consumed by fire, causing the roof to fall in, and thereby totally knocking down the stairs; neither does it refer to the falling of scaffolding, or other heavy weights, whereby a few steps may be broken. But I may say, without fear of contradiction, that no stone staircase, erected in the usual manner, ever broke down under the heaviest load of human beings that could by any possibility get upon it, or under the greatest weight likely to be carried up or down by manual labour.

C. H. SMITH.

* Averages in such cases will not ensure safety.—ED.

MERTHYR TYDFIL BOARD OF HEALTH.—Last week Mr. Alfred Taylor was unanimously elected engineer to this board, out of fifty-three candidates.

MODERN FRENCH DOMESTIC ARCHITECTURE.
*House-Doorway, Paris.——M. Clerget, Architect.*

## MODERN FRENCH ARCHITECTURE.

THE doorway whereof we give an engraving is one of the eccentricities of Paris architecture, in which one overlooks the abomination of the broken pediment, and other weaknesses, for the sake of the playful fancy and artistic carving that it exhibits. It is the doorway of the house of a sculptor; was designed by M. Clerget; and, being placed at the bottom of a little garden, is protected from the degradations too common in Paris.

## THE ECONOMIC MUSEUM, FORMED BY MR. TWINING, AT THE POLYTECHNIC INSTITUTION.

IN prosecution of his scheme of popular instruction in sanitary and domestic economy, by collections of books, designs, and specimens of appliances of various kinds, with the ultimate object of permanent repertories of useful knowledge for every-day life, Mr. T. Twining, jun. has lately brought together, at the Polytechnic Institution, a small but very useful collection as the *nucleus* of a larger museum, or an illustration of the agency which he proposes should be set in operation by Mechanics' Institutes, as well as on the required national scale. A somewhat similar illustrative "Economic Museum" was formed at Paris as part of the Exhibition of 1855: one was opened at Brussels at the Philanthropic Congress, in 1856: the idea was repeated at Vienna and Feldsberg; and in 1857 an Economic Collection, got together at Mr. Twining's expense, was, with the aid of Dr. Lyon Playfair, made part of the South Kensington Museum. The present collection, like that last mentioned, is formed in the name of the Society of Arts.

The objects are classified under the heads,—"Building Designs;" "Materials for Building, Furniture, and other Household Requisites;" "Fixtures, Furniture, and Household Utensils;" "Textile Materials, Fabrics, and Costumes;" "Food, Fuel, and other Household Stores;" "Sanitary Department;" Home Education, Self-instruction, Recreation;" "Miscellaneous Articles, not referable to the foregoing classes;" and "The Economic Library." Divisions first and last named of those specially interesting to ourselves, are those in which the distinctive value of the collection at the Polytechnic Institution at present consists; and any one requiring to design and carry into execution dwellings for the working classes, or to get information in matters of domestic, sanitary, educational, and social economy, would find here arranged, some of the chief books and pamphlets, British and foreign, as well as plans and designs, and illustrations of the dwellings for the same classes, as erected in various countries, besides some models or illustrations of improvements in the construction of staircases, floors, and external galleries, furnishing information much of which could not be procured elsewhere with ease. To render the library portion of the collection, however, as useful as it might be, a printed catalogue, following the classification adopted, should be at once procurable. At present, the better part of the collection (or, except in the division of food, fuel, and household stores, scarcely what the public will pay due attention to) cannot be as useful as it might be to those who would turn it to account.

For general purposes, it is very properly part of the scheme to dispense with reference to catalogues, *instructional labels* being substituted.

The intention is more particularly to impart to those of the community having moderate incomes, knowledge of what sort of dwellings they should live in; what improvements in domestic economy they may derive from scientific discovery, and from other nations; what fabrics they should wear, and what food they should eat, distinguishing things durable, or wholesome, and really cheap; and also how their food should be cooked. Eventually it is hoped that the museum will form a medium between Great Britain and foreign countries, for interchange of publications and contrivances. Something of this kind appears to be in process of realization under the direction of M. Ducpetiaux, at Brussels—according to the plan recommended by the Congress of 1856. Arrangements have been made at the Polytechnic Institution for lectures in every branch of the "Practical Philosophy of Common Life;" and lectures on the food section are already in course of delivery.

In the second and third classes, there are already arranged some specimens of bricks, tiles, glass, felt, metals; the manufactured articles, as nails, and screws; pigments, and paper-hangings, with prices affixed. Some of the Belgian paper-hangings are certainly better in pattern than the English which are near them; and they appear to be cheaper by very much. The sanitary department chiefly devoted to appliances medical and surgical, will include also means for preservation from injuries and diseases—or amongst the number of those, plans for ventilation and for securing healthy dwellings. Also in the division of miscellaneous articles, the arrangement of berths and ships' cabins, two classes, is shown; and a small beginning is made at the representation of a working-man's home—to include stationery, clocks, scales and weights, workbox, tools, string and glue, and the like, and appliances for cottage gardening. In the head of education and recreation, "instruction in the principles of taste," "correct patterns," and "articles for cottage decoration" contrasted with the uncouth ornaments which are too common, are set forth as amongst objects intended, or articles to be exhibited.

Enough has been said to show that the undertaking is a very comprehensive one, and if the museum and library at all fairly reflect Mr. Twining's excellent scheme as drawn,—the space at the Polytechnic Institution must be quite insufficient, as indeed the space allotted is at present. We should be disposed to restrict the undertaking as closely as possible to the illustration of what should be the working-man's every-day life. Otherwise, with any space likely to be obtained, the collection will not merely be unmanageable,—it will lose those advantages of the speciality of character, for the sake of which the museums and libraries repeating what may or ought to be in Great Russell-street, are most advisedly set on foot. Everything in the present collection should interest the working-man, and yet objects may have crept in, which having regard to classification, and the best facilities for instruction, may be rather suited to other departments of the Polytechnic Institution. Mr. Twining's devotion of his abilities and his means deserves the grateful thanks of his countrymen.

## INSPECTION OF THEATRES.

### DRURY-LANE.

IN a report read to the annual meeting of proprietors and renters last week, Mr. Marsh Nelson says:—

"The melancholy accidents that have lately occurred in theatres and places of public amusement prove the advantages of the regulations which you have made from time to time for the security of the public.

There has, however, been great difficulty in enforcing these regulations, in consequence of an unfortunate omission in the Police Act of the 2 & 3 Vict. cap. 48.

By this Act the police can prevent obstructions, and make regulations *outside* the theatre, but they cannot enforce any regulations *inside* the walls (except as to the prevention of crime); in fact, they have no power to enter licensed theatres even whilst the doors are open to the public, and the performances are going on.

The Lord Chamberlain is in the same difficulty; he is obliged to rely upon the managers to carry out his orders, and he is powerless unless he resorts to the extreme measure of taking away the license.

It is true that the lessees of theatres have "*paid policemen*," but these policemen are in a great measure under their control. It is a bad system, and for the interests of both the managers and the public it ought to be altered.

The frequent inspections at the Theatre Royal Drury-lane have tended much to the greater security of the building, and the safety of the public. Your Act of Parliament enables you to appoint proper officers to attend to these duties, and in this respect you are better off than the Lord Chamberlain or the magistrates.

The Lord Chamberlain's Act, the 6 & 7 Vict. cap. 68, for regulating theatres, neither provides him with officers, nor with funds to pay them (*another strange omission*), and up to 1855 no inspection was made. The examiner of plays now visits the theatres (accompanied by a clerk of the works), at the annual renewal of the licences.

Great credit, however, is due to the Lord Chamberlain's department for instituting *any* inspection where none is required by the Act.

The magistrates license theatres out of the Lord Chamberlain's jurisdiction, and (under the 25 Geo. II.) all other places of amusement in the metropolis. It is well known that they institute no periodical inspections."

In conclusion Mr. Nelson pointed out, as we have before done, the advantages possessed by Drury-lane Theatre. "There is no theatre or opera in the metropolis where so large a space is allotted for staircases, corridors, and entrances. They are all under a separate roof, and divided from the several ties of boxes, pit, &c. by a thick wall. The result is that in a few minutes an audience, however large, is enabled to leave the theatre, and to enter these spacious fire-proof corridors and staircases, where they are secure from any danger in case of accident."

In this report there are some passages calling for notice. Mr. Nelson, whilst remarking on the merits of the plan of the building—or in regard to the large space appropriated to staircases, corridors, and entrances for the galleries, pit, and boxes—there being for each a double set, fire-proof, and the whole under a separate roof; and remarking in words similar to our own, on the security that might be felt, since every person amongst the audience might in a few minutes reach these staircases and corridors, and there be free from danger, as well as adverting to the advantages of insulated site, says that "the melancholy accidents that have lately occurred," "prove the advantages of the regulations" in the case of this theatre, which have from time to time been made, by those whom he is addressing, "for the security of the public." Now, we are sorry to destroy the equanimity which exists amongst those concerned with Drury-lane Theatre, and their satisfaction that they are not as others are. But we should not discharge our duty, did we fail to observe that facts, during the greater part of several years past, offer no ground for the praise which seems to be accorded in this particular respect, the *regulations* actually in force having been rather the reverse of those which could be called advantageous, or those proved to be so by the recent accidents. The truth is, what is well known to many of our readers, that the entrances on the Vinegar-yard side of the house were, till quite recently, closed, and had remained so during many years, unless with very slight intervals of exception; and we believe it is due to the management of Miss Pyne and Mr. Harrison, aided by the general apprehensions excited by the accident at the Surrey Music-hall, Sheffield, that the advantages of the architect's original design and plan are no longer absolutely negatived by "regulations." Indeed, Mr. Harrison, in a letter to the *Times*, dated in September of last year, refers to the fire-proof communications, as though then for the first time discovered. Some of the passages, staircases, and doors, he said, had not been made use of for five-and-twenty years, and even said that the *extra* means of egress which he had thrown open to the public were as many as six in number. Whether the case of Drury-lane Theatre was present to Mr. Nelson's mind when he referred in his report on the Polytechnic Institution accident, to the "cutting off or otherwise appropriating means of exit from places of public resort," we need not examine, since he limits his "instances" of exit-ways closed "merely to avoid the expense of check-takers," to a period within six months; but the closed doors in Vinegar-yard, with a similar explanation to that now suggested, have been present to our mind on every occasion of our taking up the subject, of late years.

What the public are interested in, is the question whether the present arrangements at Drury-lane are such as should be in all respects quoted as example, or, if so, whether the law affords sufficient safeguard against future destruction for the time, of the advantages of plan, by "regulations." Now we do not take the plan of Drury-lane Theatre as possessed of more advantages, comparatively as regards other theatres, than those of an unusual *number* of staircases and exit-ways placed somewhat widely apart. These, certainly, already so prominently dwelt upon by us, are points of by far the greatest importance. But, in certain details as to steps, the planning of Drury-lane Theatre is not to be approved of absolutely; whilst, in regard to the use of baluster-rails to open well-holes of staircases, in place of inclosing walls, preferred at Covent-garden, as also to some other matters, the questions for consideration in that branch of theatre-planning become less important here, only from the ample area given to the communications, and become immediately predominent questions when such area of the plan is lessened. We question whether the inadequate utilization of means provided, which we have been referring to, involving danger, would not be found to exist, at the very date at which we are writing. At the close of the night's performance, we know, the exit-ways into Vinegar-yard are all opened; but we also know that the same communications in the early part of the evening, though available, are not generally supposed to be so, for exit; and, indeed, it could not be otherwise from the circumstances of their long disuse, and present disuse of some of them as money-taking entrances. But beyond this, the arrangement as to the barriers remains unimproved; and, in place of the long narrow *queue*, extending if need be, outside the theatre, so that people on foot might be regulated by the police with little more difficulty than the line of carriages, the system is to admit a vast crowd into a covered space, and then to let them undergo the process of wedging up to the aperture, at the pay-box, wide enough for the admission of one person, during which they cannot be under control, and on stairs, are, as the accidents have shown, in a state of constant danger from some panic. The effect is to prevent many persons from visiting theatres, and so to interfere with that regularity of returns and income on which the success of the management and proprietary depends. It seems to us not unreasonable to expect that with site completely insulated, and in an open part of the town, and with sufficient length of colonnaded footway (all required for general reasons), there would be no difficulty in getting rid, in a properly devised plan, of such danger as exists even at Drury-lane, where, especially in regard to the barriers, by the defects whether of the plan, or of alterations, or "regulations," the consequences any night at this time of the year, from panic, might be calamitous, far beyond all recent experience. To show the necessity of attention to safety of the public, further than seems to be paid by the proprietors of Drury-lane Theatre, we may mention that each gas-light in the pit, under the boxes, with the flame wholly undefended, projects from the wall, at 5 feet from the floor, or about the height of a lady's bonnet; whilst during the attractions of the pantomime, the pit has been so densely crowded, up to the walls, that there has been little room to move, and some slight difficulty occasionally in keeping from contact with the light. Thus, absolutely bad as are the arrangements at other theatres built some time back, inadequate as they are even at those recently erected,* it is clear that much more study than has yet been given to the subject is needed, and much better arrangement of plan and better regulations for constant observance are required than those which exist in the best planned and regulated theatre of the metropolis.

We must at the same time point out, that whilst it may be said that Drury-lane Theatre "abuts on four public ways," so as to get "entrances and exit-ways for the public on three sides,"—regarding which we need only refer to what we have said as to the advantages,—the theatre still has not really the insulated site, and has much less the abutting upon wide carriageways all along its four sides, for which we contend as essential to arrangement of the best internal plan, and to police regulations on the improved system suggested externally at the entrances, and to safety in the streets, freedom from danger by fire to neighbouring property, and that use of an opportunity for architectural effect which should ever be made, as the opportunity should be required to be offered, in the erection of such a building, and every other of a public character. The architecture of London theatres, externally, is not now very worthy of our metropolis.

In drawing attention, however, to the actual state of the law affecting the arrangements of theatres, Mr. Marsh Nelson has done service. It appears that the Lord Chamberlain's department, under the act for regulating theatres, does not require any inspection of buildings, and therefore does not provide officers or funds for such purpose. Up to 1855, no inspection was made; but the Examiner of Plays, accompanied by a clerk of works, now visits theatres on the annual renewal of the licenses; and great credit, Mr. Nelson thinks, is due for the institution of an inspection where none is required—though the Chamberlain cannot enforce regulations unless he resorts to the extreme measure of taking away the license. The magistrates license theatres out of the jurisdiction of the Lord Chamberlain, and all public places of amusement in the metropolis for music and dancing; but they have no system of inspection. The conclusion, however, in which we are justified, is, simply that much of the power asked for in the presentment of the jury in the case of the Polytechnic Institution, does exist; and the need is only in the one case, of the performance of the duty of inspection, and in the other, of the appointment by the Chamberlain, of a person professionally qualified. For, it must be quite clear that the licensing of the building of a theatre, admittedly a distinct *duty*, is quite a different sort of duty to that of examination of plays and the permission to be granted prior to performance; and although the license for the building may be given specifically to an individual, this does not seem to us to alter the requirement of the Chamberlain's or magistrates' duty, the obligation of which otherwise could be but little. There is no doubt what view will be taken of the whole subject, if time and the Reform Bill, in the busy session just commenced, should permit; but meanwhile, the course for the Lord Chamberlain and the magistrates is plain, unless they be invested most erroneously with powers as licensers. As to the structural question, we have already shown that the district surveyors have requisite power, if supported by the magistrates. A large question as to many places of resort, such as the news-rooms, however, remains.

That there is defective power of the other authorities, by the Police Act is more clear; in fact, if Mr. Nelson be correct, it is difficult to say that the police have any power inside a theatre. They could, however, do more than at present to prevent confusion at the doors, even by regulations outside; but this part of the subject calls for more attention than we can now give. Want of aptitude in the management of crowds, has been a failing in the police on several important occasions.

We have dwelt upon this question of entrances and exit-ways of places of public resort, in connection with the recent report on Drury-lane Theatre, because we feel that the public and the official mind, with all that has been learned by the recent accidents, have still to make an advance, the nature and extent of which, in order to secure required safety in buildings, especially places of amusement, is not at all supposed. The architect to Drury-lane Theatre is right in speaking of that building, as being in plan almost the only theatre in the metropolis designed with any consideration for the requirements of large audiences; but he obviously does not think it unsusceptible of improvement; and he must on further consideration question the advantage, with regard to "security of the public," of some of the "regulations" which have been made, or he would be unfitted for the post which doubtless he fills with excellent effect.

* Often without blame to the architect. See, for example, the pit of the Olympic, where till the conclusion of the performance, all are forced to go in and out by one narrow door, though a second exists. The mischief that would result here in the event of a panic, cannot be calculated. Ill feeling and disorder are caused even without any special exciting cause,—when those who are in, desire to go out at the time the half-price people are entering.

## ROYAL ACADEMY LECTURES ON ARCHITECTURE.

### MR. G. G. SCOTT ON THE ARCHITECTURE OF THE THIRTEENTH CENTURY.*

The bases of columns throughout the Romanesque period were most usually founded on some traditional variety of the attic base. The resemblance is often obscure, but in many cases very close.

Towards the end of the Romanesque period very great attention began to be paid to the sections of base mouldings, and in transitional works they are often more beautiful than at any other period. The difference between these bases and the ordinary attic base is of the same kind which distinguishes Greek from Roman moulding. It is an extreme delicacy of curve, the substitution of elliptical section for circular, and a wonderfully studious grouping of the hollows, rounds, and arrises, so as to produce a refined and delicate contrast and gradation of light and shade without destroying the strength necessary to the main supporting feature. In this they showed a high appreciation of what is in all architecture a difficult problem—the uniting the conflicting claims of the lower part of a building, as on the one hand demanding the greatest strength of character as supporting the whole structure, and on the other a delicate finish, as the part open to the closest inspection.

The bases have usually one more part than a Classic base, having in most cases a projecting subplinth, either chamfered or moulded. In earlier

* See p. 76, *ante*.

instances, the plinth and subplinth are both square in plan, and here again we obtain a feature of great beauty, which antique architecture did not possess,—I mean the beautiful leaves or bosses of foliage which spring out of the lower torus to cover the projecting angles of the plinth.

This projection is often reduced by making the torus overhang the square plinth in the centre of its sides, and a little projecting corbel is often put to carry this overhanging as well as the leaf to cover the angles of the plinth.

At a later period the square plinth gave way to the octagonal, and in England and Normandy often to the round form.

In early work the bases often faced about diagonally, as the caps, to indicate the direction of the arch-ribs to be supported.

In France the elliptical section of the lower torus continued much longer than in England, and the upper torus was often converted into a kind of ogee; and both in France and England the scotia was usually very narrow and deep,—so much so, indeed, as to hold water. In England another kind of base is frequent, in which a bead is substituted for the Scotia. In some rich work the plinth is clothed with foliage.

I have said a good deal of the history of the capitals of the Early Pointed period in my last lecture. I particularly showed that about the period of the transition a great change took place in France in the form of the capitals, in which the old Romanesque form was almost universally abandoned in favour of one of a distinctly Byzantine origin, which I suggested came in all probability by way of Venice at the time of the erection of the Byzantine churches in Aquitaine; and that though the domical construction of churches then brought into France does not appear to have extended northward of the Loire, the Byzantine capital of the Corinthianesque type was adopted quite into the north of France, and became the parent of the exquisite capitals and foliage which in the next generation pervaded the architecture both of France and England, and, a little later, of Germany.

I also showed that the peculiar stalk, or crocket, which became so constant a feature in early Gothic capitals, took its origin from a plain unravelled leaf frequent in the Byzantine capitals, which in their turn, may have been suggested by unfinished leaves which are of very common occurrence in capitals of that period.

During the first half of the thirteenth century these crocket capitals were brought to very high perfection, the stalk or crocket either appearing in its most normal form, or being more or less clothed and concealed by foliage. In the latter case it forms a strong background to the leaves, giving them the apparent stiffness and strength necessary to their position. These usually turn over in a bunch of foliage, which is distinct from the leaves which clothe them; so that there is no inconsistency, but the reverse, in the clothing foliage being natural, while the terminal bunch which completes the crocket is conventional. Towards the middle of the century, the natural and conventional foliage were very much used together; the former being often a light, playful overlaying of stronger leading forms, but afterwards in French work, and still later in English, natural foliage became the rule and conventional the exception.

The capitals which prevailed during this century form the most magnificent series which any style of architecture can boast. Whether the foliage is natural, conventional, or both united, the artistic power evinced is truly delightful; and when it is recollected that no two capitals are ever found exactly alike, the fertility or invention they display is perfectly wonderful.

It would be hopeless in such a lecture as this to attempt to go through, even in the most cursory manner, the endless varieties of capital, from the stupendous masses of noble foliage which crown the apsidal columns at Rheims, whose single shafts are 6 feet in diameter, to the delicate reeds which decorate the mullions of windows. This one feature alone would form an ample subject for an entire lecture, or almost for a series of lectures. I will confine my present remarks to the characteristic differences which distinguish French from English capitals during the thirteenth century.

This great distinction lies in the plan of the abacus, for while in France the square form of the preceding style continued, the English architects very soon substituted the circular plan.

It is a curious question how and when this arose. In both countries the round abacus was in some instances used from an early period, but this was chiefly on great cylindrical columns with low capitals, such as those in the nave of Gloucester Cathedral; though even in France the round form occasionally occurs to subordinate shafts, as at St. Omer; but, as a general rule, both countries used the square, or the angular form, till late in the transition, when the English commenced the free adoption of the round, first alongside of the other, and afterwards to its almost entire exclusion.

So early as the erection of the crypt under the Trinity Chapel at Canterbury, by William the Englishman, about 1180, we find the round moulded capital; and in the altar recesses in the eastern transept we find the round abacus on foliated capitals, though I confess I doubt its belonging, in this last-mentioned instance, to the original work.

Much difference of opinion now exists as to the comparative merits of these two forms. By some the square abacus is assumed to be the great symbol of force and vigour, while, by others, it is said to be inconsistent with the true principles of Gothic architecture. Perhaps the question might be solved by deciding that both are beautiful, both vigorous, and both consistent with Gothic architecture, and, therefore, that both should be admitted on equal terms as portions of our general *material*.

The advantages of the angular abacus are, that it allows of the capitals indicating the direction of the arch-ribs, and assuming irregular forms suggested by them, which the round form *forbids;* that it allows of the use of *square* orders, and consequently of simpler and more effective arch mouldings than can be placed in the round abacus, on which the mouldings have to be somewhat crushed in their section, and their parts multiplied to bring them nicely on to the round support; and that the angles indicate the direction in which the main stalks of the foliage should tend. There can be no doubt on the whole that it produces the most vigorous effect, and I must plead guilty to an un-English preference for it, though I also greatly admire its competitor, whose advantages are the beautiful form which the round moulding takes, as seen in perspective from below, and its less disturbance of the continuity of line.

Another great characteristic of English architecture is the moulded (unfoliated) capital. This is almost wanting in French architecture, and I strongly contend that the invention of this capital, which we may almost claim for our own country, is one of extreme value, and supplies what would be otherwise a great hiätus in the style. Among its earlier instances is that I have already mentioned in the crypt at Canterbury. It is there in rather a plain and normal form, nearly resembling a capital denuded of its foliage, but with the space below the abacus and the bell somewhat increased for the sake of strength. The fully developed moulded capital differs from this in having a considerable overhanging moulding, which is the substitute for, and the representative on the foliage of, the richer capital. Though this overhanging moulding is uniform in type, the varieties it assumes in detail are endless, and the groups of mouldings in these capitals are among the most beautiful in the whole range of Gothic architecture, and the addition of this beautiful feature to our rich treasury of forms of capital is of infinite value.

The abacus of the moulded capitals is not necessarily round. There are many instances of its being square, and still more of its being octagonal, a form in which it continued through the later periods of English architecture.

I ought to have mentioned that, in its normal condition, the abacus is in a separate stone from the rest of the capital, though convenience frequently suggests its being in one.

When marble shafts, however, are used, it is far better that the same material be used also for the abacus.

Next in importance to the column, as a characteristic of the style, we must place the window; indeed, it has generally been made to take the precedence of it, and is no doubt that by which the date of a building is most readily ascertained, and its style defined.

The Romanesque windows were simply openings with round heads, the jambs and arches being either perfectly plain, moulded with or without enrichment, or the jambs shafted. These windows were most usually isolated, but were here and there grouped into couplets, triplets, &c. or made to form portions of continuous arcading.

In the early days of the transition, the windows remained unaltered, otherwise than as to the general refinement of their details: later on the arches were made pointed, and their proportions somewhat elongated; and even in the fully developed Early Pointed style (properly so called) the window differs little in principle from that of the Romanesque period, though, in fact, it assumes a widely different form through its carrying on, towards their ultimate results, of the principles of grouping, which began during the previous style, and those of refinement and elongation incident to the transition.

It is in carrying out these principles to a still greater extent that the Early Pointed of England differed from that of France. It is really the same style, and no important feature can be pointed out in the one country which is not to be found in the other; but, just as the Germans, by dwelling longer on the Romanesque style, rendered it more refined and perfect than elsewhere, the English, by the continued retention of the unmullioned window, systematized its use in a manner not equalled in other countries, I see no difference of principle in the fenestration of the Early French and the Early English Pointed styles: in both the principle was the decoration and combination of single lights. Nor do I see that in England this was done in a manner essentially differing in any respect from what was common in France. The great difference was the far greater width of the French openings, which often rendered their windows inelegant in proportion, while it offered a noble field for stained glass. The characteristic of the English windows, on the other hand, was narrow and tall proportions, and a greater amount of enrichment of the jambs and arches, though none of these are by any means constant features. Sometimes we find in English works lightness carried to a vicious extreme, as in the beautiful but frail eastern transept at Worcester, though, in a majority of instances, it retains a masculine firmness and solidity, as in the east end of Whitley.

Time would fail me to illustrate the magnificent combinations of this early class of window to be found in cathedrals and monastic churches, as the east end of Ely, the west at Llandaff, or the north transept at York; nor would it be possible to enumerate the simple and impressive village churches to which in their humble forms, though with equal artistic merit, they lend such a charm.

The style is too well known in England to need minute description, and its merits are too fully acknowledged to need enforcement from me.

I will rather proceed to consider that great invention which may be considered to complete the series of developments which constituted Pointed architecture. I mean the mullioned and traceried window; not that I consider it as in all points better than its predecessor, nor that in our own revival it should supersede it; but that, as a matter of fact, Gothic architecture would have been imperfect without it. Like almost every other feature of Pointed architecture, the traceried window grew out of the Romanesque.

In all periods of Romanesque we find occasionally two or more arched openings comprised under one enclosing arch. This arrangement is more frequent in belfry windows and triforium openings than elsewhere, but occurs in ordinary windows, especially in secular buildings. The space intervening between the large arch and the two or more placed below it was, even as early as this, occasionally pierced with circles or other forms of opening. Here, then, we have the elements of the mullioned window before even the introduction of the pointed arch. In the same situations it gradually developed itself, step by step, during the Early Pointed period, so that we have in triforium arcades and in other positions, a pretty full development of what is called plate tracery, before its use became frequent for ordinary windows. The case was pretty much the same both in France and England, though, on the whole, the love of placing two openings under one arch was greater in France. Thus we see in the aisles at Chartres two plain lights under one arch, with a circular opening, and above, in the clerestory, a very large circle, with somewhat complex subordinate piercings. The same is the case at Bourges, where three lights are often comprised under one arch, with a single circle in the head.

The next great element which aided in producing tracery windows was the wheel or other richly-pierced circular window. This, again, originated under the Romanesque style, as we may see at Barfreston and elsewhere. It is, in fact, a very close approach to tracery; and when placed in the space between comprising and comprised arches, it almost completes the change. All that is wanted is the piercing of the intervening spaces in forms whose outlines are parallel to the main piercings so as to form what Professor Willis calls *bar* tracery. This was, I fancy, commenced in France, though there are very early traces of it

in England, and was done at first in a partial and clumsy manner, as in some windows at Le Mans and Tours, but soon was systematized.

I do not see that in any of the previous steps the French were in advance of the English architects; but in this last step I think they were so, and this led them to a much earlier abandonment of the single window and its combinations; so that for some time the French were using tracery windows while we were rendering more perfect the unmullioned system,—not from want of knowledge of the other, but rather preference for a system in which we were producing more beautiful combinations than our neighbours had attained.

It is not a very profitable question to inquire by how many years the French may have been in advance of us in this development, and it is so exceedingly difficult to get at positive dates of the erection of buildings in either country, that it would be impossible if desired. The fact no doubt is, that for many years the two kinds of window were contemporaneous: thus tracered windows may have been in use at Rheims and Amiens while the older kind was being used at Bourges and Chartres.

It is said that in England the fully-developed bar tracery was first used in Westminster Abbey, which was commenced in 1245, but this is merely an assumption; and it is clear that it was used in the eastern part of St. Paul's, a part of which was consecrated in 1240. The east window of Netley Abbey looks very early. I do not know its real date, but believe it is said to have been finished in 1249; while the eastern windows at Lincoln look too thoroughly developed to be very early specimens, though known to have been erected between 1250 and 1280. In any case, the change had fully established itself in England during the third quarter of the century.

There can be no doubt that whichever class of window we prefer, this invention was of immense practical utility. It rendered possible what was never attained before,—the formation of windows of *any* width which might be wanted without injury to the beauty of the building. This is, in fact, the great use of the mullion,—to enable you to use wider windows than you could use without it; indeed, to render their width unlimited;—and the consequence of the invention was the introduction of windows in some cases not less than 30 feet or more in width, and 60 or 70 in height, and that without appearing to make any unseemly gap in the walling, which would otherwise have been the case with a window of one-sixth of the size.

After the system was once introduced, it seems to me to have been often more beautifully carried out in England than in France; indeed, I hardly know, in France, windows of equal beauty with those at Lincoln, Tintern, or St. Mary's Abbey at York.

At a later period excess of tracery became the great vice of the style, but when kept within bounds it unquestionably was a great element to its perfection, and though it must always be remembered that a building of any amount of beauty and dignity can be designed without it, it would be placing upon ourselves a very foolish restriction, if, merely from an individual preference for the earlier and sterner style, we were to debar ourselves from the use of so convenient and reasonable an element.

One feature in which the English works of this period appear to me to be peculiarly excellent, is the base moulds,—I do not mean of columns, but of the building itself. I have never seen any in France to equal many of our own in the quality of appearing eminently fitted to support the whole structure, or in the artistic arrangement of their parts.

Against this we may balance on the other side the French cornices and foliated bands, which are one of their most beautiful characteristics. They usually consist of two courses—a hollow projecting moulding containing the foliage, capped by a weather moulding;—the equivalent respectively of the bell and abacus of the capital; indeed, in many cases forming the continuation of the capitals of window jambs across the intervening piers. We have in many cases cornices equivalent to these, as at York, Howden, and the nave of Lichfield; but they are, on the whole, a much less English than French feature. The foliage they contain is usually of great beauty, and eminently suited to its position.

The great glory, however, of the French churches, is their doorways; and beautiful as are those of our own, they make no kind of pretension to vie with those of our neighbours in magnificence. In this respect the architects of the two nations seem to have gone on quite contrary principles; for the French, even in buildings on a secondary scale, introduced portals of prodigious size and extreme richness; while the English, even in buildings on a grand scale, often made their doorways very inconspicuous. Compare, for instance, the façades of Amiens and of Wells: in one the portals are everything, so that you can recollect little else; in the other they are nothing, and you can scarcely recollect their existence; while, in the façade above, the English example is the richer of the two; and the illustrative sculpture, which, in the one case, is expended on the portals, is in the other diffused over the entire front. In England a magnificent portal is of rare occurrence: in France one looks for it as a thing of course. Nothing more glorious than the great French portals can be conceived: the lofty and deeply receding jambs are divided in their ample height into two portions—the pedestal or basement—which is richly decorated either with diaper work, or with sculptured medallions; or, as at Amiens, with both; and the upper stage contains colossal figures of Apostles, or other holy men of old,—who appear to view with severe and solemn benignity the entering crowd, and to express by the gravity of their countenances the caution,—"Keep thy foot when thou goest to the House of God." In the tympanum are sculptured scenes from Scripture history, the lives of saints, our Lord surrounded by the Evangelistic symbols, or perhaps the awful scenes of the final judgment; and the mouldings of the arch are probably filled with angelic figures as if the guardians of the faithful worshippers; while this impressive array of imagery is placed in a setting of the noblest and most perfect architecture, and that on a scale well suited to the sublimity of the sentiments expressed.

The portals of Notre Dame at Paris, of Amiens, and of Chartres, may be instanced as among the most striking examples, but all great churches of the end of the twelfth and of the thirteenth century have the same truly glorious approaches, well calculated to solemnize the minds of those entering by them, and to prepare the way for the overwhelming dignity of the interior.

The nearest approach which we have in England to this class of doorway is the south entrance to the eastern part of Lincoln, a truly noble portal; but on the whole, though of a different class, the most dignified approach to any English cathedral is the western part of Ely.

St. Alban's has had three magnificent western entrances. The small ones have been wonderful works of art, though now ruined.

The north porches of Salisbury and Wells are very noble; indeed, many of our great churches have portals which we should deem magnificent, could we forget those of France, and what we know to be eminently beautiful, however they may be surpassed in magnificence.

In almost all other parts the English cathedrals of this age are often richer than the French, as in the clustering of the columns, the richness of the arch mouldings, the beauty of their wall-arcading, the importance and detail of the triforium, &c. while on the contra side they have to yield greatly to the French in altitude, and in many cases in general scale, as well as in the amount of sculpture with which they are enriched.

My object in drawing these comparisons is not a wish to lay any claim to superiority for either, nor to shake the claims of our neighbours to general precedence, as I view Paris to be, in a certain sense, the centre and metropolis of Mediæval art. It is rather to show that these were the arts of a great *period*, not of a single *people*; that all were labouring together in perfecting a great and glorious development of art,—each knowing well what others were doing, each according to their means taking care to keep up to the standard already attained, and to add to the public treasury developments of their own,—each making it his great endeavour to do his own work as well as it could possibly be done according to the means at command,—and each people vieing with their neighbours, not in the spirit of petty, jealous competitors for praise, but each striving with a noble and glorious emulation to do the utmost in their power to further the great art which all had contributed in generating.

Having given in this and my two preceding lectures a rough and very imperfect sketch of the rise and perfecting of Gothic architecture, it is not my intention any further to pursue the subject historically; but, assuming the thirteenth century to be the great period of the style, I should wish in any future lectures I may give, to illustrate and discuss its principles, and the many sections into which it divides itself, whether geographical varieties, or the leading features of the buildings themselves. I may not be able to carry out this intention, but in the one lecture I hope to give next week I purpose—after alluding to some of the most remarkable works of the period, and with some slight description of their characteristics, and after calling attention to the all-pervading character of the art as it bore upon secular and other buildings upon the allied arts, and upon the ordinary arts of common life—to found, upon what we have had in review before us, some general suggestions as to the practical lessons we ought to learn from what we have been considering, and the influence it ought to have upon our own artistic practice.

### *Lecture II.**

In my last lecture I gave a hasty outline of the developed architecture of this great period (thirteenth century). I will now endeavour to give an equally hasty glance at some of its more marked creations; beginning—as in duty bound—at home. Their number, however, is so great, that one is perplexed to know where to begin, or in what order to take them. Perhaps the most profitable way will be to imagine the student to live in London, and to commence with the works of this century which he may study within a walk of his home.

Let us begin, then, with the church of St. Saviour (formerly St. Mary Overie), in Southwark.

When I first knew this church, the whole of it was standing: externally, it is true, the aspect it presented was not very pleasing, for it had been cased almost throughout with red brick, and the Lady Chapel was little else than a ruin. The choir was then in course of restoration. The interior was a most noble structure, and was almost perfect, and nearly all of this century, though some small portions westward were earlier, and the south transept possibly a little later. The whole was on a very symmetrical design, that of the nave being very much on the same with the choir.

Its character may easily be judged of from what remains. It was nobly massive, and grand; not of lofty proportions, but still such as to satisfy the eye. The pillars were alternately round, and canted squares, flanked with attached shafts; the triforium consisting of arcades, and interrupted only by the vaulting shafts. At the east end is a beautiful Lady Chapel, vaulted on light clustered pillars.

The restoration of the choir was carried out by the late Mr. George Gwilt, aided by his sons; and it is impossible too warmly to praise the zeal and ardour with which they pursued their work—their study of the style then so little understood—or the untiring pains they took to render their restoration accurate. All these ardent lovers of ancient art are now deceased, and I feel a melancholy pleasure in bearing witness to their merits. I was intimately acquainted with one of the sons, and never did I meet a man more enthusiastically devoted to the style on which his artistic education had been founded. He absolutely adored everything which was Early English; and in carrying out restorations (in one of which he aided me), so faithfully did he reproduce the old work, that nothing could induce him to alter even the positions of the jointing of the ashlar work.

The pains which Mr. Gwilt took in restoring the choir disgusted the heartless parishioners, who, on proceeding to the transepts, placed the work in other hands; but on the Lady Chapel being undertaken by private individuals, Mr. Gwilt nobly undertook the work gratuitously, and carried it out with the same care he had bestowed on the choir.

Shortly after this, a report having arisen that the nave roof was decayed, a surveyor was employed to examine it, who recklessly condemning it as unsafe, it was taken off, and none put on in its place. The walls being of chalk became shattered by exposure to the frost of several winters; and, when the restoration of the nave was proposed to the parishioners, that enlightened body of men negatived it, and, taking down the glorious old structure, erected the present monstrosity in its place.

Happily, however, the interiors of the choir and Lady Chapel are still perfect. Let us hope and pray that their widowhood may not be of much longer duration, but that a reproduction of the noble nave may be substituted for its unworthy supplanter.

I should mention that the nave was entered on the south side by a very noble double doorway of great height and depth, though when I knew it its decorative features had perished. I will only add, that if measured drawings of this church are

* Delivered on Thursday, the 27th.

in possession of the family of Mr. Gwilt, it would be most desirable that they should be deposited among public archives, to await the time when they *must* be wanted as a guide to the re-erection of the lost portions. In the meantime let me beg of you to study well what remains.

Next in importance and probably in date comes the choir of the Temple Church, which was consecrated in 1240,—a more fortunate building than the last, and not needing from me any chronicle of its restoration. It is, in idea, a magnified transcript of the Lady Chapel at St. Saviour's, being, like it, vaulted throughout upon pillars of equal height, and is probably about the most perfect specimen in England of this beautiful mode of construction.

The only other important instance I recollect in London of the earlier portion of our style is the chapel at Lambeth—a very good Early English chapel, though somewhat dishonoured by plaster vaulting, the ribs of which I myself saw being prepared for by a core of spikes and tar-cord. Let us hope that this is the last instance of such construction, especially of its introduction in a time-honoured building like this.

We now come to one of the noblest of England's temples, the Abbey Church of Westminster; and you will readily excuse me from dishonouring this truly glorious temple by attempting its description in the course of a hasty catalogue like what I am now giving. As you all know, it was commenced in 1245 by King Henry III. and the eastern portions finished about 1269. This makes it contemporary, in a certain sense, with Amiens; for, though the latter was commenced in 1220, it was not completed till 1288. There can be no doubt that the cathedral at Amiens was at the time of its erection viewed as the most perfect development of the style, for it is clear that it was made in many instances the model on which the designs of other churches were formed.

Cologne Cathedral, for instance, was commenced in 1248, during the erection of that at Amiens, and is manifestly a free copy of it so far as concerns its earlier portions; and, though Westminster Abbey is by no means built on the model of Amiens, it was probably influenced by it. That prodigious pile, carried forward through so long a series of years, would be a great object of interest to all contemporary church builders, and Henry, who was much in France, would naturally send the architect of his own sacred mausoleum to see the great work of his day.

Westminster Abbey is a church built on a French ideal, but with English detail,—a great French thought expressed in excellent English.

The windows are of the perfected bar tracery, which had not yet been much used in England, but in other respects I cannot find a distinctively French detail (or scarcely any) in the building, excepting the work of a single French foliage carver. Even the plan, which is purely French in idea, is carried out in a manner quite different from that of any French church I have seen.

In the architecture the union of the manners of the two nations is most happy. The pillars are nearly like those of the great French cathedral, but the side shafts, instead of being attached, are separate shafts of Purbeck marble, the nucleus and the capitals and bases being all of the same beautiful material. The use of this hard stone led to that of moulded unfoliated capitals, in which they lose in effect when compared with those at Amiens; but the nobler material would more than compensate for this.

The triforium is far superior to that at Amiens, both in design and detail; and the whole internal design, though inferior in size and altitude, is to my eye far more pleasing, and when its varied materials retained their colour, and the Purbeck marble which pervades every part preserved its polish, there cannot be a doubt as to the superior magnificence of its effect.

The parts, too, are much better proportioned, with perhaps the one exception of the too acute form of the main arches: the wall arcading is much more beautiful, and the details generally more richly moulded. We have, then, here at our doors a building whose interior is equal to that of any existing Gothic building, and we have no excuse if we do not avail ourselves of so noble an opportunity of study.

Of the exterior I will say nothing. All its old features had perished by the end of the seventeenth century, when they were vilely renewed; and this base restoration is now in its turn decayed.

The chapter-house is a splendid but melancholy relic,—little more than a ruin,—and that not like those ruins which seem to do honour to the memory of their bygone glory by the picturesque loveliness which graces their decay. It is choked up with presses, chests, galleries, huge sacks of parchment, and every possible obstruction and disfigurement. Its beautiful windows—which filled the entire width of its sides—walled up, and its elegant vaulting destroyed. Just enough remains to render its restoration practicable. I have with great labour traced out all the old details, and only wish for the chance of restoring it in some degree to its pristine beauty. I exhibit a drawing of it as restored. I should mention that the splendid encaustic floor is still perfect, and that very fine specimens of wall-panelling still remain. The vestibule and staircase by which it is approached are beautifully designed, and the doorway from the cloister is among the most splendid relics of English art. The latter is in a dreadful state of decay, but I am happy to say that it has just been stereotyped in its present state by the application of an invisible solution, which will prevent the further progress of disintegration, and which has set and hardened the crumbling particles which the gentlest touch would have before displaced.

The foliated carving in Westminster Abbey unites the two great types which characterise the century,—the conventional and the natural,—and contains some of the best of each. I commend it to your careful study, and will mention that all within reach has been indurated in the manner I have just alluded to. What remains of the figure-sculpture is also of great merit, especially four angelic figures in the triforium of the transept, and two full-length figures in the chapter-house, one of which I had the great happiness of discovering.

The internal proportions of the abbey seem to me to surpass those of any other I have seen. They appear to be generally founded upon the equilateral triangle, and a comparison of this with many other churches will confirm the truth of what I have heard has been stated by an ancient Freemason, that the square will furnish good proportions, but the equilateral triangle much better.

The introduction of Italian mosaic work, both porphyry mosaic on the pavement and glass mosaic on the tombs of the builder and re-builder of the abbey, is a fact of great interest, as showing the high estimation in which the arts peculiar to Italy were then held,—so much so as to lead to the bringing to England of two master mosaic-workers, Odorico and Pietro (each, no doubt, with his staff of workmen), to carry out the two branches of the art. Both artists were from Rome, as the inscriptions still testify; but their work was put together here, as is proved by the use of Purbeck marble, both as the groundwork of the pavement and for the architecture of the tombs. This architecture is not very elegant in its details, excepting only the beautiful spiral pillars and some of the surface patterns prepared for the mosaic, and the introduction of art so inferior to their own, for the sake of the rich inlaying it contained, still more strongly proves their appreciation of the merits of the mosaic art. Let us follow the example more wisely; and, when we import any foreign speciality, let us not bring with it any of the demerits which chance to accompany it, but unite it with the best art we are masters of.

I know few, if any, churches which possess the same internal beauty as Westminster Abbey. More modern art has done its worst to ruin it, but its intrinsic loveliness overrides every such attempt, and reigns triumphant over every disfigurement. One characteristic it possesses almost alone,—I mean the virgin privilege of perpetual exemption from the brush of the whitewasher. It probably owes this unique happiness to its having been built on the principles of constructive polychromy. It has materials of at least four varieties of colour, and those in some degree systematically and artistically used; and this fact has been sufficient to keep the whitewasher at bay. We are told that it is un-English and fantastic to care anything about the colours of our materials; but let it never be forgotten that the churches which could boast of the chaste dignity of their unvaried stone-colour have been, both at home and abroad, made over periodically to the tender mercies of the monochromist, while this, at least, has been spared,—and that on account of the un-English phantasy of using more than one natural colour in its construction. These colours are now nearly concealed by smoke, but they still show modestly through, and still aid in rendering the tone more solemn and striking than that of any church I have seen excepting that very different one, St. Mark's at Venice.

Among the monuments in the Abbey belonging to this century I will mention (in addition to the Italian works already alluded to), the effigy of William de Valence, an oak figure plated with enamelled copper, the enamels on which are of magnificent workmanship. The beautiful bronze effigies of Henry III. and Queen Eleanor with the marble altar-tomb on the latter and its beautiful iron grille. The pretty little altar-tomb of some of the royal children, and the gorgeous monuments to Edmund Earl of Lancaster and Aveline his countess. The latter have been among the most splendidly decorated works of their day, and are worthy of the very closest study both by the architect and the architectural painter.

I will call attention to one other object in the Abbey, I mean the remarkable ancient retable, or movable reredos, formerly belonging to the high altar. It is a wonderful work of art, and I call attention to it, especially in this place, because it contains the most beautiful specimen of very early painting remaining in this country. It is, probably, by an Italian artist,—several of whom are known to have been brought over about this time,—but I confess I have seen no work of its age in Italy which I thought equal to it,—an opinion confirmed by an Italian professor of architecture, to whom I once showed it. It is, I believe, contemporary with the early days of Giotto.

I will now pass on to a far humbler building, and one very little known or visited: I mean the chapel of St. Etheldreda, in Ely-place, Holborn.

This was the chapel of the splendid town palace of the Bishops of Ely, and was built by Bishop de Luda, soon after 1290. The destruction of the palace you will, I dare say, recollect to have been celebrated by Pugin, in his "Contrasts." It was sold during the last century, and the present untempting-looking street built on its site,—a place where one would as little expect to find a gem of ancient art as the ripe strawberries which Dickon, of Gloucester, saw growing there, and begged for.

The chapel is in a wretched plight: its side windows have lost both tracery and mullions: its west window is, in a great measure, boarded up,—the cradled roof plastered,—the whole galleried around and fitted up with pewing which would disgrace a tabernacle of the last century: yet through all this its beauty still shows. The chapel is, as was so usual with private chapels, elevated on an over-ground crypt, so as to bring it to a level with the principal apartments of the palace. Curiously enough, this crypt is not vaulted, but has over it the original floor of massive timber.

The east and west windows, of five lights each, are among the finest of their period and size. The side windows, and denuded of their tracery, retain internally their beautiful jamb-mouldings, and the wall between them, has a graceful canopied, and crocketed panel to each intervening pier, and which gives the sides a very rich effect. I had long and often lamented their mutilated condition, and was one day trying to get at some clue to the design of the tracery by examining the scars where it had been amputated, when the thought struck me that the two westernmost of them being blocked up by the adjoining houses, might, if opened out, be found to retain their decorative features. I applied for permission to do this, and what was my delight, on removing the material which obstructed them, to find the old window—mutilated, indeed, and shattered—but still retaining every element needful to the restoration of its design.

The doorway to the chapel is very beautiful, and its foliated ornament well worthy of study. The internal dimensions are about 90 feet by 30 feet, a favourite size, it would seem, and not differing much from the dimensions of St. Stephen's Chapel, that at Temple Balsal, or the Sainte Chapelle, at Paris (reckoning the latter in French feet).

The architecture of the chapel is nearly allied to that of a series of sepulchral monuments I alluded to in my former lecture, and some of them again in this. One of these is that of its own founder at Ely: the second and third are those of Edmund and Aveline, Westminster Abbey; and the fourth is that of Archbishop Peckham, at Canterbury. All these date between 1290 and 1300, and are works of exquisite beauty, and of the richest decorative art.*

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LIVERPOOL ARCHITECTURAL SOCIETY.—At the fortnightly meeting of the Liverpool Architectural and Archæological Society, held on Wednesday evening, the 26th ult. Mr. T. D. Barry read the continuation of his paper on "The Cost and Construction of Cemeteries; and the Incidental Buildings."

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* To be continued.

## ON THE APPLICATION OF ART IN MANUFACTURE.*

I DO not address you upon the general question of art as applied to manufactures,—the value and importance of *that* is too well and too generally appreciated for me to attempt by any arguments to impress it more strongly upon you. It is upon the due and distinctive application of that art in each particular branch of manufacture that I purpose to claim your attention.

I believe that throughout this country the knowledge of art has, during the last ten years, become very much more diffused; but precisely as that knowledge extends, it is essential that the principles of its application be clearly defined and generally understood. A smattering of art-knowledge is more dangerous than absolute ignorance; for, the savage who weaves a mat is compelled to adopt the simplest forms suited to the texture of the fabric at which he works,—and this, indeed, is the rudimentary principle of design; while the chances are that the man who has a slight and superficial knowledge, brings together scraps of ornament copied from this or that work, and forms a pattern incongruous in itself, and inappropriate to the object he seeks to adorn; and as his skill increases so does the evil, if he is not guided by those principles which should regulate the composition of design, and if his mind is not cultivated to distinguish the characteristics of each particular style and each particular period of art.

At the present day our artists have a difficulty to contend with unknown to those of Etruria or the art-workmen of the middle ages. *They* knew but one style, and, knowing that well, carried it to a high state of perfection, while too often our own artists get but a confused knowledge of a mixture of Greek, Elizabethan, Gothic, and Louis Quatorze. This imperfection of art-education has given rise to a particular sort of style: borrowing certain forms from the Greek, it exaggerates them into grossness and coarseness, altogether destructive of their original beauty: it adds to them a touch of the "rococo" of Louis Quatorze, and produces an *ensemble* utterly meretricious and vulgar, but largely prevailing in provincial architectural ornaments, carpets, cabinet-work, and crockery, and is vastly admired, as the manufacturers tell us, by country purchasers in general.

The Government schools of design established throughout the country have no doubt done much good in correcting this perversion of taste; but the student, when he has finished at the school, has still much to learn. He has been taught the precepts: he has had little practice: he must gather knowledge, and gain experience, by studying good works, exemplifying what he has been taught. Here has been hitherto the grand difficulty of our English designers—Where were they to find examples? Where were they to study their art in their own country? Great indeed is the boon to them of a museum like this, which now brings before their eyes the materials for study in practical examples of art manufacture, as well as ornaments in various styles of art. This is the real *school* for design. At the schools of design they learn the grammar; here they may study the language of their art.

There is still another element to be considered, and that is the proper remunerative price which should be paid for designs. What avails it to an artist if, after having studied his art, and gained considerable experience and ability, he gets little by it.

I think manufacturers in general have too low an opinion of the value of good designs. How can it be expected that a man of talent will devote himself to this profession if it is not made worth his while? In my own experience, how continually do I see money wasted in the purchase of quantities of low-priced designs, which cost ten times their price in preparing the cards for weaving, or the blocks for printing. How many thousand designs are yearly produced by manufacturers on the happy-go-lucky principle of those that succeed paying for those that fail. I pray them to calculate the yearly cost of printing-blocks and weaving-cards thus thrown away, and to consider how much better, how much more economical it would be, to remunerate handsomely a clever artist to assist in producing fewer but more carefully prepared designs.

This is an important subject, and I shall allude to it more in detail under the head of the manufactures particularly affected by it. Above all, O manufacturers! learn somewhat of the rudiments of those arts which you employ in your works; enable yourselves to exercise your own judgment, with less of chance in the selection of designs. How often have I heard manufacturers reply to my suggestions for a better class of design, "But, sir, the good things don't sell, it's the things you condemn that pay." How difficult to make them understand that their good things were not what I called good, and that failure arose from a perfect misunderstanding of what was the right thing.

Till the genius and great powers of mind of Welby Pugin brought such crushing ridicule upon the abortions of taste as applied to design, we know what monstrous things were perpetrated. The principles he enunciated have taken root, and well-informed men thoroughly appreciate them; but still it takes time to eradicate a long-grown evil.

To correct such errors by endeavouring to explain how a knowledge of these true principles will enable us to avoid them, is my object in preparing these somewhat desultory remarks that I bring before you.

I shall divide my subject into the following heads: Woven Fabrics, Paperhangings, Metal Works, China and Glass, and Furniture. In the first of these—

*Woven Fabrics*,—I shall confine myself to those articles pertaining to architectural arrangements, such as curtains or wall hangings: to enter upon the consideration of ladies' dress would open too formidable a question, and yet I think on a fit occasion a few hints upon the subject might be given with advantage.

These woven fabrics consisting of various tissues depend on particular circumstances for the character of the design suitable to them; but all are influenced more or less by this leading principle—"That the fabric itself should, as far as possible, be the fundamental element of the design."

In silk we have the lustre, richness, and beauty of the raw material; in wool we have solidity and quiet depth of tone; while in muslins or lace we have transparency and delicacy of texture.

The class of design, therefore, for each of these should be studied with reference to the nature of the material, and a consideration of the kind of pattern best calculated to give it due effect; but in every case it should be remembered that the ornament must be perfectly flat: shadowed projections would be alike ineffective and absurd.

Woollen fabrics as furniture hangings have a fine effect if not inappropriately ornamented; but if you draw attention to a fanciful pattern, suited only to show off the lustre of silk, you lose altogether the real merit of the material.

It is desirable in stuffs of any solidity to have the design boldly and firmly expressed, and not to go into delicacies of detail suitable only for a finer material. The pattern may be small, but in that case it should be simple and geometrical. I think, generally speaking, our manufacturers keep too much to one sort of design for these fabrics; they rarely venture out of the all-over pattern. Now, very fine effects are produced by an arrangement of horizontal lines, which in some materials gives great facilities for the introduction of various colours, and are particularly effective as curtain hangings. At the same time this requires skilful arrangement of colours; and here, I fear, would be our difficulty; for, a matter that is a simple every-day affair to the weaver of Africa or Asia, is to us, in our advanced state of science and the arts, almost an impossibility.

Here is a kind of blanket which I purchased at the Tunisian Court in the Exhibition of 1851. How beautiful are the modulations of colour as well as the distribution of patterns! And it will be noticed that these patterns are not repeated, but constantly vary; indeed, I saw no two blankets alike.

Similar to these are the cotton stuffs still used in Spain for the *alforcas* or saddle-bags, which give beautiful examples of rich contrasts of colour. Another style of pattern is often seen in Mediæval illustrations, running diagonally. This has an excellent effect in the vertical folds of curtains.

This is shown in the handsome silk and wool tapestry curtain, to which I beg to call your attention, and likewise in the printed chintz pattern which I will allude to presently. The men who originally composed these patterns, must have considered carefully the particular arrangement of the stuffs, and have made their designs accordingly.

When silk is used in a woollen stuff it should be made to take some leading feature, or form a boundary to the ornament, and not be worked in unmeaning and ineffective patches, as I have sometimes noticed.

When the pattern of the stuff is small and arranged either geometrically or in scroll pattern, the effect of the curtain is improved by a bordering.

The design of the border should be clear and precise, and above all, in accordance with the style of the filling; it is of no use in a narrow margin attempting to cram in bouquets of flowers, such as the rose, shamrock, and thistle, which by-the-bye however elegant in fancy, I have rarely seen blended comfortably together.

There is no reason why the ground of the border should not contrast in colour that of the fillings, or be even somewhat prodigal in colours if the style of the room will justify it.

These kinds of fabrics are well adapted for table covers; but it is almost impossible to find them of suitable designs and colourings: a table cover is to be considered a surface on which ornamental objects may be placed; therefore, the part that lies on the table should be either plain, or of small geometric pattern in two shades of the same colour, such as deep red, green, or blue; and the part that hangs over may have a border richly coloured of flowers, or ornament, or both. Or again, the border may partake of the colouring of the centre according to the room where it is required to be used.

In *silk fabrics* the beauty of the material, and the means of displaying it, afforded by the various processes of weaving, should influence the character of the pattern.

In *Brocatelles* the silk is brought to the surface, while the back is cotton; a very solid material is thus produced, in which the pattern is richly raised in satin, the ground being silk, and either of the same tone or contrasted in another colour. It is most desirable therefore in these stuffs to have a bold design, showing broad surfaces, which in deep colourings and in a shaded light have almost the effect of velvet.

In ordinary silk damasks of uniform colour, as in the Chinese silks and others of that kind, it is again desirable to have the pattern of bold design, otherwise it would be scarcely visible.

But in rich satin damasks of two or more colours, the design should be so arranged as to give a play of light and shade upon the ornament, which should be more delicately treated in parts, though the main design must be effective and bold.

The specimens I show you will best explain my meaning in this respect. If flowers be introduced it is essential that the lights and shadows be treated with great breadth, to preserve that flatness so requisite to the proper effect.

I have not yet alluded to the Indian stuffs, reserving them for particular consideration, and in truth they well deserve it.

It is extraordinary that while the French have borrowed so much from the designs of the Arabs of their Algerine colony, we regard so little those valuable products of India, which exhibit to us perfect specimens of the true principles which should guide our designers for woven fabrics.

They are alike remarkable for the rich invention shown in the patterns, as for the beauty, distinctness, and variety of the forms ornamenting the surface, without destroying the flatness.

The leading lines of the ornaments are first clearly expressed, and then the foliage, fibreing, and flowers, flow with graceful undulations, covering the surface with symmetry: we have no highly shaded natural flowers, but conventional representations of them, sufficiently suggestive to convey the intended image to the mind.

In the management of the colours, also, we have beautiful examples of the mode in which the most brilliant contrasts of colour may be brought together, and be made to harmonize, so that the whole appears one soft bloom of colouring.

The ornaments are clearly defined by outlines of white, yellow, gold, or black, according to the colour of the ground they are worked on.

The Indian patterns are mostly very small; but they are highly suggestive for designs of a larger character applicable to other fabrics.

*Cotton Stuffs*, except as chintzes, are little used as furniture hangings, and yet they admit of extensive application, if made of sufficient solidity and in fast colourings; but the designs should not be of the same description as for wool or silk hangings, or for dresses. The best form of pattern for them would be the horizontal stripes in contrasts of colour, which I instanced just now as much used in Spain, and is also well shown in the pattern before you.

But the principal use of cotton stuffs is as printed hangings or chintzes; these are become a very favourite article of furniture for their clean, lively, fresh appearance; therefore, in designing for them, these characteristics should be considered. In all the superior chintzes, flowers

* Read by Mr. John G. Crace, Wednesday, February 2nd, at the Architectural Museum.

seem to be the only resource of the designer, these are often very beautifully drawn, and the colouring admirably brought out; but still a little consistency (we will wave principle) would avoid on a hanging which has folds, and therefore its own shadows, the introduction of roses tumbling over each other with deep projective shadings: careful drawing will prove that greater beauty is attained by avoiding those projections, and also by preserving a broad, flat effect in the lights and shadows.

Though I admire some of these flowered chintzes, I yet maintain that flowers conventionally treated as in the Indian chintzes are, when arranged in hangings, quite as effective, and are more appropriate than natural flowers.

It is not, however, necessary to depend on flowers alone: ornament, when properly designed, has an excellent effect. I will instance this Gothic chintz, designed by Pugin.

In patterns such as this, it is possible to have as much colour as can be given by flowers; and in some rooms it is more appropriate, especially in Gothic or Elizabethan architecture.

I will now say a few words on *muslin and lace hangings*, but more especially the latter, because it is a very beautiful fabric, which most ingenious machinery has enabled us to have at a moderate cost. I dare say that the manufacturers have found difficulty in obtaining appropriate designs for a new class of manufacture; but certainly I have seen scarcely any which fulfilled the principle, "that the element of the design should be founded on the fabric itself." Very few of them have the least characteristic of lace.

The manufacturers have either copied some of the coarsest old damask patterns, or have adapted extravagant ornaments of outrageously vulgar taste,—such as masses of melons, pears, pineapples, vast branches of grapes, or extraordinary foliage and flowers of gigantic proportions; and, as appropriate to a light elegant dwarf curtain, a leopard one-third the size of nature. This is shocking perversion of taste and common sense. It is evident that talent is not encouraged to devote itself in designing for this fabric; and I am not surprised to learn that the most meagre prices are given for these designs, perhaps 2*l.* for a work that, to put it in the loom, will cost 80*l.* before a yard of lace is made. It is not difficult to obtain specimens of old guipure: there are works on ornament giving designs for lace; many elegant patterns have been worked in muslin curtains. It is thus easy for an able man to find matter to study from, but he must be paid for his talent. A good pattern for a lace curtain is cheap at 20*l.*; and it would pay better than the one at 2*l.*

Either geometric patterns, or patterns of flowing lines branching into ornament, elaborated with the stitches characteristic of lace, are suitable for this material; borderings are desirable, but they should be kept within reasonable dimensions.

*Carpets.*—These are of various manufacture—such as the Brussels, velvet pile, Kidderminster, patent tapestry, Axminster, patent Axminster, &c. Besides these, we import such as the Turkey, Persian, and Indian carpets.

The principle of *making the fabric itself the element of the design*, is particularly to be observed in this manufacture; for, certain kinds, from the coarseness of their stitch, absolutely require it. In preparing designs for carpets, these considerations should always be borne in mind—that they are to cover a floor—and therefore to be trodden upon; that they are a ground for the furniture, and, from the great mass of colour, are an important feature in the general harmony of a room.

It will therefore be evident, firstly, that the design should be flat, without cast shadows of any kind; and all shadows of objects to be carried out with flatness also.

Secondly. That the general colouring should not be too obtrusive, so as to destroy the effect of all the other objects in a room.

Kidderminster carpets are the commonest and cheapest of those I have mentioned. The nature of the fabric does not admit of many colours with good effect, and it always looks far the best when made in small geometric patterns, which alone are suitable to it; but being cheap, and therefore sold to purchasers of limited means, the designers fancy that *they* will like to have a good show for their money, and the consequence is, large scrawling patterns, most disagreeably coloured, and utterly destructive of pleasing harmony in a room.

The ordinary Brussels carpets are, upon the whole, more tastefully and more consistently designed than most of the others. Being a more important manufacture, greater attention has been paid to the designs; and though I am aware that most atrociously ugly and vulgar patterns are occasionally produced, yet I believe that the right principles are generally understood.

In designing flowers for carpets I would recommend our artists to observe closely the best examples of the French Aubusson tapestry carpets. It will be observed that, though the flowers have all the freshness and brilliancy of nature, the lights and shadows are treated with great breadth, flatness, and solidity, producing a far more beautiful effect than shading them up in the way of a water-colour drawing. I do not object to flowers in a carpet if consistently and properly designed; but where such a carpet is used there should not be flowers on the furniture or walls, otherwise confusion arises. On the whole, I must confess I prefer quiet carpets, of deep rich tones, with ornaments geometrically arranged, and flowers conventionally treated. I fully appreciate the glowing and beautiful productions of April and May; but I like them in their proper place.

Perhaps these remarks apply with more force in reference to the tapestry carpets, a manufacture of recent date, and brought to a great degree of perfection with infinite perseverance and ingenuity. By this process the range of colours is unlimited, and any degree of shading is to be obtained; therefore the manufacturers run riot in their freedom, and produce the most gaudy, magnificent, and outrageously inconsistent patterns that can be conceived: enormous scrolls, *à la* Louis XIV. strongly shaded in bold relief, entwined by the most brilliant flowers of every gay colour, three times the size of natural ones, with rampant foliage in deep masses; these are the popular patterns, selling enormously, and therefore the manufacturers shut their ears to the whisperings of consistency, and what we should call good taste. I am aware that a carefully studied design requires a higher talent, and therefore will be more expensive than those rampant designs done with a facile hand.

But they need not fear but that improved productions will bear an increased value, and easily obtain a proportionate price; a better feeling for art is extending, and will produce a steadily increasing demand for good things: those manufacturers who regard the sign will reap the advantage.

In the Axminster carpets, made at Wilton, the stitch is necessarily a large one; and, therefore, in most of the patterns, the natural conditions of the fabric have been regarded, and always with good effect. At various times I have noticed in country mansions, carpets perhaps fifty or one hundred years old, made at Axminster, where the manufacture originated, which are perfect models of good taste as regards the style of ornament and colouring. I understand the firm still possess some of those patterns, which I strongly advise them again to work.

The patent Axminster carpets, by an ingenious process, have a finer stitch at a more reasonable cost; but the necessity for multiplication of the same pattern diminishes this advantage. A more careful arrangement of the designs, and a more sober style of colouring, would add greatly to the value of these carpets, more especially if the principle I have before expressed about the flowers is properly carried out. These Axminster carpets can be made of any ordinary dimensions in one piece, so that they may be made particularly to accord with the decoration of a room. But it must not be forgotten that the room has to be furnished, and that the main ground of the carpet should be kept quiet, while the outer portion and the centre may be more richly worked in ornament or flowers. In these expensive carpets, good, appropriate designs of the several styles are so necessary and so precious, that the very highest talent in ornamental art should be engaged to prepare them.

Of the carpets imported from the East, none are so beautiful in my opinion as those from India manufactured at Masulipatam. The designs are perfect examples, combining symmetric arrangement, elegant and pleasing forms suited to the fabric, and rich but harmonious colouring. They cannot be too carefully studied by the student of design, or by any carpet artist who may have the desire to improve himself. Particular attention should be paid to the borders; you will not find in them any gross exaggerated forms: on the contrary, the ornaments are delicate and unobtrusive, and yet brought out clearly and pleasantly by the contrasts of the ground. These carpets can be safely placed in almost any kind of room, either Mediæval or modern.

The Persian carpets are also in good taste, but are rarely brought to this country except in the form of rugs.

The Turkey carpets are always quiet, rich, and harmonious in the colouring, but the designs have of late years lost much of their excellence. It appears to me as if the patterns were entirely traditional, and that some of the better kind being lost, the men of the present day had no power to compose others. There is a great want of leading lines, especially in the margins of the borders.*

## THE ARCHITECTURAL EXHIBITION, 1859.

THE galleries in Conduit-street are being rapidly proceeded with, and the Architectural Exhibition will be opened to the public on the 16th day of March next. The committee are of course anxious that the collection should be a good one, and we would appeal on their behalf to the elder members of the profession, and beg them to forward works for exhibition.

The department for models, carvings, decorations, specimens of manufactures, and inventions connected with building will receive particular attention: all contributions are to be delivered and fixed in the spaces allotted between the 1st and 12th of March.

Arrangements are being made for a series of lectures on the Tuesday evenings. Messrs. Sydney Smirke, A.R.A., T. H. Lewis, George E. Street, F. P. Cockerell, and others, have already promised to assist in this respect.

The report of the committee for the past year is congratulatory, and they are, for the first time, enabled to point to a balance on the credit side of the account. They say:—

"On the last occasion it was only by contending with difficulties which were almost insuperable, that it was possible to open the Exhibition at all: as it was, the season was much curtailed, and the drawings were hung while the room was full of scaffolding, and while the workmen were finishing the alterations in the galleries, and the roof and ceiling were never completed till the Exhibition was over, so that the galleries were cold and comfortless, and there was the least possible inducement for visitors to congregate."

"It must be confessed that a critical period in the history of the Exhibition has now arrived; the new galleries in Conduit-street, built expressly for the purpose, have been taken for the months of March, April, May, and June, at the rent of 200*l.* which, though moderate for the benefit received, is yet so much larger than has ever been paid before, that the committee may well feel much anxiety as to the result.

Under these circumstances the committee trust that their subscribers will exert themselves to obtain as much additional support as possible, and they would especially hope that a much larger number of season tickets may be taken, the cost of which (half-a crown each) it is not intended to raise."

Earl de Grey, Mr. C. Oldfield, and Mr. Waterhouse, of Manchester, have invested sums in shares of the Architectural Union Company, the dividends from which they have given in perpetuity to the Architectural Exhibition.

The receipts last year, including money paid at the door, subscriptions, and donations, were 375*l.* 14s. 9d. The payments (rent being 56*l.*) left a balance of 40*l.* 2s. 2d. in the hands of the treasurer to begin the new campaign with. The accounts were audited by Mr. F. Tyerman and Mr. J. Drayton Wyatt.

We may add that the galleries and other parts of the new Home for Architects in Conduit-street promise well.

## MOORISH ART.

### LECTURES AT THE MUSEUM OF THE DEPARTMENT OF ART.

ON Monday, the 31st ult. Dr. G. Kinkel delivered a lecture on "Mahometan Art, illustrating the Influence of Byzantine Art on the Schools of the East." First sketching the marvellously rapid spread of the religion of Mahomet, the lecturer showed that the Arabs had the tact to employ the capabilities of the countries they conquered. On the Ganges the buildings of Mahometanism are quite different from those produced by it in Sicily. Showing how that the form of worship had produced the arrangement of the mosques,—an open court with a covered portion, where the Koran might be read if it rained, and a lofty slight tower, whence the muezzin might cry, if in the morning, "Come to prayer: prayer is better than sleep,"—the lecturer described some of the best known structures of this kind. In Cairo Mahometan art reached its greatest completeness, as far as regards plan, and displayed splendid roofs, rich gilding, and the pointed arch. In Western Asia the pointed arch had been used "shyly" before the Christian era. The Arabs were not satisfied with the round arch: the pointed, as being more picturesque, suited them better, and they used it early. To them he thought we owed it. The Cuba, at Palermo, which he attributed to the Moors (the evidence, by the way, is

* To be continued.

against this latter assumption), displays it throughout. In the East a more splendid style arose, because the Byzantines had ruled before them. The cupola was the leading characteristic of Byzantine art, and was used as the type of a despotic government! The Mahometans adopted it because it represented their feelings in this respect too. He considered the works in India the best that the Mahometans had produced in any part of the world, and he dilated at some length on the beauty of Moorish colour and outline ornament, showing the weakness that resulted from the prohibition in their buildings of sculptured representations of living things. The lecture was made interesting by fluency and a pleasant manner, but was deficient in useful teaching and in a clear enunciation of dates.

## NATIONAL GALLERY FOR IRELAND.

The first stone of the new National Gallery was laid on Saturday, the 29th ult. by his Excellency the Lord-Lieutenant. Our readers are aware that this building will form a northern wing to the premises of the Royal Dublin Society, its gable end facing Merrion-square; and that the corresponding southern wing is the new Museum of the society, which has been fully described in the *Builder* already. Although entitled the National Gallery, it is also intended as a "Dargan testimonial," in commemoration of Mr. William Dargan's philanthropy in maturing, at his own individual expense, the Great Industrial Exhibition of 1853. A portion of the building will be devoted to the reception of Archbishop Narcissus Marsh's library, which at present occupies an obscure position near St. Patrick's Cathedral. Internally the National Gallery building will comprise, on the ground-floor, a sculpture-hall, to be called the Dargan Hall, 114 ft. in length, by 40 ft. in width, by 23 ft. in height; and a library apartment of 91 ft. by 40 ft. in which the volumes of Marsh's library are to be placed. At the end of the sculpture-hall a spacious staircase will lead to the great picture-gallery, which will be 126 ft. in length by 40 ft. in breadth. In a portion of the building is introduced a second library apartment, and some officials' rooms. The galleries will afford much greater space for the display of artistic works than those likely to be available in the first instance. Externally the building will have chiselled granite rusticated basement, blank windows, with Portland stone dressings, and ornamental frieze and cantilever roof. The probable cost of construction will be 12,000*l*. Messrs. Cockburn and Sons are the builders. The disposition of the remaining portion of the lawn will now demand serious attention, and as a feeling for national monuments seems to exist in Dublin just now, here is a glorious site for a few statues of eminent men.

## THE POLICY OF RAILWAY COMPANIES.

### THE SOUTH-EASTERN.

As we have concerned ourselves in promoting the success of railway companies, through notices of places of interest on different lines—the South-Eastern railway amongst others,—and by showing advantages, healthful and educational, to many of our readers, of occasional country trips,—we may, perhaps, ask for explanation of the peculiar arrangements of the South-Eastern company as to fares—arrangements which, if general, might go towards explaining much that is obscure in the present condition of railway property.

For Blackwater, 54 miles from London, the ordinary return ticket, first class, in the South-Eastern company's list of fares, is priced 9s. For Reigate-town the return fare is 6s. A gentleman connected with this journal, having to proceed to Blackwater, and being desirous to alight for an hour or two at Reigate, lately took a return-ticket to the last-named place, under the very natural supposition that he could thence proceed to Blackwater, returning to London at a total disbursement of the amount of fare—9s. between London and Blackwater,—or with some very slight addition to the 9s. or to the 3s. amount of difference, to cover the extra trouble to the company. The actual fares charged amounted to just double, or 18s. Now there is no grievance with the company for a charge of 12s. for the distance (31 miles each way) between Reigate and Blackwater—as compared with a charge of 6s. for that (23 miles each way) between London and Reigate, however absurd the contrast. But it is nothing less than an imposition on the part of a company, whilst omitting all statement of such a fact as that fares for one part of a journey are double those for the other half, or that by a break in the journey an expense amounting to *double* the through-fare is incurred, to make a statement which can only lead to the belief that the fare will be half that intended to be charged. In the present case it was of no particular importance to call at Reigate; and it will be observed that, had this been avoided, a second journey could have been made to Reigate; and yet the total expense of the journeys would not then have amounted to the 18s. charged in the actual case. Had the holder of the Reigate ticket entered a train for London at some further distant station without payment of fare, delivering up only his ticket for the short distance, he would have been rightly judged guilty of swindling the company. But where would have been the difference between the criminality on one side and the deception practised on the other?

Now, this experience of the practice of railway companies is of far more importance than concerns ourselves. If the companies choose, they can, by moderating their fares and consulting the comfort of their passengers, still vastly increase the number of those passengers, and serve a great educational object,—conducing to knowledge of each other, and of their country, at present wanting, amongst masses of the people who hardly yet have been able to avail themselves much of railroad communication. That there is ground for the financial argument is, perhaps, adequately shown by the fortunate experience of the Brighton company, lately reported on. But if companies, after the practice of the hotel-keeping interest, merely try what they can make out of their passengers, regardless of other objects, as of fair-dealing and principle, the state of railway property will be worse than it is, instead of following the natural tendencies of population and development of resources of the country. For those who must travel any expenses may be inevitable; but by those who consider their inclinations, railroads managed on the principle of the South-Eastern, will be avoided or exchanged for other routes of interest.

## RESPONSIBILITIES OF ARCHITECTS ABROAD.

At the end of last year, a house in progress of erection in the Rue Tant-perd-tant-paie, in Boulogne, fell, and caused the death of two young girls, and injury to six other persons. In consequence of this, M. Delhière, architect, and M. Dieuset, contractor, have been brought before the Tribunal on a charge of homicide and of wounding by imprudence, negligence, and inattention.

At the trial, *experts* reported the results of examinations. According to the *Journal Belge de l'Architecture*,* they deposed that the mortar was too poor. It consisted of three parts sand to one of lime, and was not sufficiently beaten: in the walls, the material of which had been supplied by the proprietor, there was not a sufficient number of perpend-stones; so that instead of being bonded into one whole, they consisted of two halves, placed side by side. Moreover, the masonry negligently performed contained *voids*, which could never be prevented but by constant superintendence. After hearing the witnesses, the president interrogated the accused.

Delhière pleaded that having fallen ill some time before the accident, and not having recovered when it happened, he had not been able to superintend the works sufficiently, and that the disaster was due to the proprietor and the contractor; that the rapidity with which the works had been carried on, was neither directed nor forbidden by him; that as to the mortar and the absence of perpend-stones, these were the business of the mason, and not of the architect; and, finally, that he had made the drawings gratuitously, and gratuitously gave such time to the superintendence, as within the limits of his means he could afford.

Dieuset admitted that the walls had been carried up too rapidly; that the materials employed were defective; and that he had pointed this out to Delhière. He maintained that the mortar was good; that it was made in the usual way, of three of sand to one of lime; that the vacancies spoken of could not be avoided; that he was not a contractor, but merely a task-master; and, finally, that he had in all things followed the plans and instructions of Delhière, who had the sole charge of the works.

After hearing counsel, the Tribunal condemned Delhière, architect, to five months' imprisonment, and fifty francs fine; and Dieuset, to imprisonment for fifteen days, and a fine of twenty-five francs.

* The same number of this periodical, *livraison* 10*e. année* 8*e.* contains a portion of our account of the new Theatre Royal, Adelphi, translated, with the plan, &c.

## THE SPEAKER'S RESIDENCE, NEW HOUSES OF PARLIAMENT.

Such is the hurry-scurry of the time, that the only chance of obtaining general attention for anything is to make it *àpropos* to some event, or give it at some epoch which for the moment engages the public mind. It is full of evils, this necessity, but there it is: and so, as her Majesty, Heaven bless her! opened Parliament on Thursday last, and all the kingdom is talking about her passage through the Westminster Palace, the appearance of the House of Lords, and the near approach to completion of this extraordinary pile of buildings, we give a view of the State Dining-Room in the official residence of the Speaker, now for the first time ready for occupation.

The Speaker's House occupies part of the two pavilions, if we may so term them, forming the end of the river front of the Westminster Palace, next Westminster Bridge, and is approached by archways from Palace Yard. It is of considerable extent, comprising from sixty to seventy rooms, and is finished throughout in the style of the structure generally. The staircase, with its carvings, tile-paving, and brass-work, is exceedingly effective and elegant, and everywhere there is a large amount of painted and gilded decoration. Cloisters, approached from the House, surround a court, about 20 feet square: the window openings in the cloisters are filled with stained glass, containing the arms of all the Speakers, with the date of election.

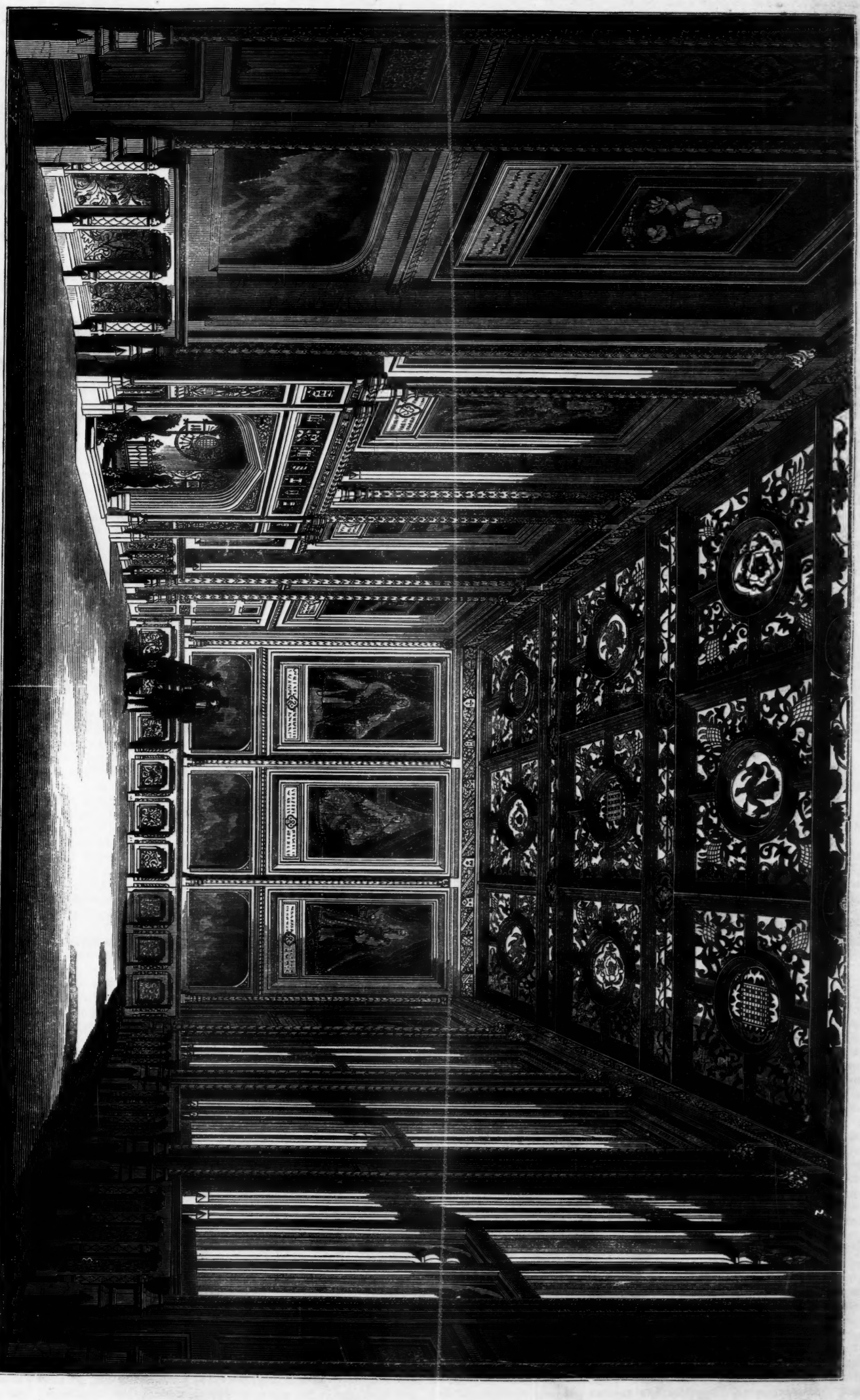
The *Times*, in a recent notice of this building, gives the following account of the Speakers whose arms appear:—

"The first Speaker actually mentioned by that title in legal documents is Sir W. T. Hungerford, elected 1377, in the reign of Edward III. We meet with the old name and armorial bearings of the Waldegraves as Speakers as early as 1382; while, in 1400, Sir John Tiptoft is elected, and was the first Speaker elevated to the peerage, Henry IV. of Lancaster creating him Baron de Tiptoft in 1406, in return for certain 'courtly compliances,' which in those days meant a great deal. The Beauchamps are found as early as 1415, while the Baynards of Castle Baynard, in the city where kings once stayed, and where the Duke of Buckingham offered the crown to Richard III. are seen no more after 1421. John Russell was Speaker in 1423 and 1432. From this date the election of Speakers seems to have occurred with each meeting of Parliaments about once a year, till the time of Elizabeth, when that arbitrary sovereign refused to ratify the election of Sir John Popham; and when afterwards the great Edward Coke filled the chair. 1641 gives us the next name of great note, the William Lenthal, of Charles I.'s disordered Parliament,—the man who refused to answer Charles's questions when he came to seize the members; and in that ill-advised act began the war in which he lost both crown and head. Sir Harbottle Grimston, of 1660, whose arms are surmounted with the bloody hand of the Ulster knights, was the first Speaker whose election was never ratified (though he still kept his Speakership) by Charles II. The haughty Edward Seymour, who used to speak of the Duke of Somerset as the young branch of his family, followed the example of Sir Harbottle, though in a different way. Instead of asking Charles to ratify his election, which he knew the monarch never would, he contented himself with announcing simply that he had been elected and was the Speaker,—a statement which left no course open to the irritated king but to add sharply, in reply, 'Very well.' The House that was summoned in 1689, after James II. fled, also elected its own Speaker, Henry Powle, and this election, also, was never confirmed by William of Orange. Wyndham Greville, also, was elected without royal sanction, in 1789, while George III. was mentally incapable of attending to any business.

The name and arms of Sir John Trevor are also in the Gothic windows, though Sir John was expelled the House for taking bribes. Of the whole 131 Speakers only fifteen have been elevated to the peerage,—by the titles of Baron Tiptoft, Lord Hungerford, Lord Audley, Earl of Oxford and Mortimer, Lord Onslow, Earl of Wilmington, Lord Grantley, Lord Grenville, Viscount Sidmouth, Lord Redesdale, Lord Colchester, Viscount Canterbury, Lord Dunfermline, and Viscount Eversley."

The principal floor includes the state dining-room, the drawing-room, 37 feet 3 inches by 28 feet 9 inches; morning room, 34 feet 6 inches by 23 feet 9 inches; and a smaller dining-room, 34 feet by 24 feet 6 inches. The state dining-room, shown by our engraving, is 45 feet by 23 feet 6 inches. Frames set in the walls will receive a collection of portraits of past Speakers. The room is lighted at night by wax-candles in coronæ, omitted in the view. To light the four rooms, 400 wax-candles are employed. Sir Charles Barry appears to have been exceedingly successful in the house he has provided for the Speaker.

The Space by St. Paul's.—Why should not the hiding up of St. Paul's, by civic Vandalism and covetousness, be stopped by the country taking the piece of ground as a site for the monument to Wellington? In the cathedral the proposed erection will be one of many memorials of our generals: without, it would stand, as it ought, a rememberance of the great warrior of our history, seen by hundreds for one who would ever enter the Consistory Court to look at it, and fitly placed as a pair to the conqueror of Peace—Sir Robert Peel.—A Countryman.



THE SPEAKER'S HOUSE, WESTMINSTER PALACE.—SIR CHARLES BARRY, R.A. ARCHITECT.

## ROBERT BURNS AND SCOTTISH EDUCATION.

THE centenary of this poet has passed by, and the enthusiasm of the day has given way to more calm reflections, which, however, lead us to feel no diminished interest in the writer who has uttered such manly and patriotic sentiments, excited so many excellent feelings, and put before us such exquisite pictures of nature, as Burns has done. His failings, and they were great, have been passed over in consideration of the circumstances in which he was placed, and the natural kindliness and warmth of his feelings. The man who wrote the "Cottar's Saturday Night" could not have been one without solemn and religious feelings; and, so far as the history of Burns has been traced, it is seen that, in spite of straitened circumstances, he did not prostitute for gold the talent which had been given to him. For Mr. Thompson, Burns wrote some of his most popular songs, concerning which, when offered payment for them, the poet said that they were either "above or below price;" and, although kindly presents were made by Mr. Thompson, no request for money was made for these songs—which stir the souls of Scotchmen and Scotchwomen all over the world—until a very short time before Robert Burns's death. He, weakened with illnesses, prostrated and enfeebled in mind, fancied (there might be justice in the thought) that he was about at the time of his waning life to be taken from his bed to prison, and then he sent to ask Mr. Thompson for the loan of 5*l.* to save him from this disaster.

When the poet's faults are thought of, it should be considered that about seventy or eighty years ago men of position, and those who headed the intelligence of the age, were not of such moderate habits as those of similar position at the present time: then it was by no means uncommon for our nobles and great men to drink deeply, and debauchery was not looked upon as a disgrace.

Young and inexperienced in the world's ways, Burns was introduced to persons of rank and condition, who, when the novelty of the "*lion*" had passed away, left him, in a manner forgotten, after he had become accustomed to luxurious habits, to battle with the under-currents which beset him. Let it pass: for his errors he has himself suffered: by his abilities mankind has been the gainer.

There have been some things taught by the recent festivals. Amongst them it may be noticed that although we are looked upon by some as a nation of shopkeepers—a plodding lot,—still the six hundred and twenty poems contributed in connection with Burns show, even if they may not be of very high mark, what a feeling for poetry, and even poetic feeling, exists. Lord Brougham says,—"It is impossible to read the accounts of Burns's family, and his description of and correspondence with his friends of the same age and the same humble station, and not be struck with the manner in which they were all raised above their condition by the ordinary education of the parish schools, and the taste for reading and for contemplation to which it gives rise. . . . The existence of genius must ever be an accident; but as it cannot be confined to any class of the community, the chances of its appearing—that is, of its existence being known—must needs be in proportion to the numbers placed in circumstances which shall nurse and unfold it." Let those who have the opportunity of doing so celebrate the memory of Burns by bestowing some time, if they can spare it, or in other ways assisting, in the improvement of those who, like the Scotch poet, were born amongst the lowly of the land.

## THE FRENCH AND ENGLISH GOVERNMENTS IN RESPECT OF ART.

IF, according to the Roman saying, "it is right to be taught by your enemy," it surely must be much more so to be readily corrected by a friend. I feel obliged to Mr. Kerr and to yourself for allowing me the opportunity of removing an impression upon his mind, which may also have occurred to others present, in regard to what I *intended* to say upon the occasion of Monsieur Silvestre's address to the Institute of British Architects, at the ordinary meeting held on the 24th of January.

That gentleman has been sent over by his Government to inquire into the art-educational establishments of this country. I intended, therefore, to express my satisfaction at so significant a circumstance. History tells us that the French Government has preceded ours by two or three centuries in procuring facilities of study to artists, artizans, and manufacturers. Francis I. sent to Italy and engaged Primaticcio and other able Italians to procure and bring over to France works of the most eminent painters and sculptors of the day, and also to enrich by their own productions the Palace of Fontainebleau, and to establish schools of art in France. This was about three centuries ago. Louis XIV. and his minister, Colbert, created the French academy at Rome in the middle of the seventeenth century; since which period twenty artists and five musicians have been constantly maintained in Italy, there to study the productions of that country of the fine arts; while we have only *one* pensioned student, not from the Government, but from the Royal Academy. By these means the French school at an early period gained European eminence, and the manufactures, impressed by the taste given them by the artists, had in many foreign markets the advantage of ours, from the elegance and refinement of their patterns. I did not seek to institute a comparison depreciating to our artists: in fact, I did not allude to them; and I know too well their merits and excellencies ever to speak disparagingly of them. What I did mean was, to notice the previous neglect of our Government in disregarding the cultivation of the fine arts as a source of national wealth. To this they have been alive only within a very few years, and have now made great efforts to supply deficiency.

Monsieur Silvestre alluded to the gigantic improvements now carrying on at Paris; and, noticing these, I could not but refer to the neglect of our Government in disregarding opportunities and the *necessities* of ample metropolitan thoroughfares. When vacant spaces are made which enable us to enjoy a view of our cathedral from a most favourable point, or to improve our communications, an extravagant economy, a meanness of spirit leads to covering the vacant plot near St. Paul's and the space at the west end of Cheapside. We must surely confess that they manage these things better in Paris. Such consideration may be humiliating; but so little alive are the public generally to these facts, and the public press also, except the *Builder*, that, unless they are reiterated and kept alive before public observation, London will never have the means of communication such as those now being given to Paris, and which are much more necessary to us from our larger population, from our extensive commerce, and from the inconvenience and loss caused by the obstructions arising from the absence of sufficient arterial lines from one side of London to the other. Without noticing the south side of the Thames, where matters are in a still worse state, let us consider this side. From Regent-circus, Oxford-street, to Farringdon-street, and from the Old Bailey to King William-street, in the City, there is *not one* street through which three vehicles can pass abreast,—hardly any for two; and Mr. Kerr may count upon the fingers of one hand even the direct lines from north to south, from Hyde-park, Oxford-street, to the Minories—a distance of four miles. Such was Paris ten years since. What a magical change have the judgment and determined will of the emperor now effected!

Let us not, then, be ashamed to take a lesson from our neighbours, as they now seek to take one from us in our Governmental schools for instruction in the fine arts in connection with our manufactures.

I object to nothing that Mr. Kerr says in regard to myself. I could have wished the allusions to others had been expressed in more considerate language and less unjust terms,—more akin to Mr. Kerr's own inner kindly feelings, to which his writings and speeches too often offer a striking and not pleasing contrast. THOS. L. DONALDSON.

## THE "BUILDER'S" LAW NOTES,

*Insolvency.*—Selling property within three months of the date of a petition to pay an execution levied to satisfy a judgment for debt is not such a "parting with property" as will invalidate a petition under the Protection Acts.—*Re Israel.*

*Lands Clauses Consolidation Act.*—Where the occupier of land has no greater interest therein than as a tenant for a year, or from year to year, and such land has been entered upon or injuriously affected by the promoters of an undertaking within the Lands Clauses Consolidation Act, he can obtain compensation only by the determination of two justices, and is not entitled to have his claim settled by arbitration.—*The Queen* v. *Manchester Railway Company.*

*Master and Servant.*—A person, with the consent of the owner of the soil and of the surveyor of the district, employed a labourer to cleanse a drain running from the employer's house under the public road, and paid him for the job. He had never before employed him, and did not direct him in doing the job. It was held, however, that the relationship of master and servant was established, so as to render the employer liable for an injury occasioned to a third party whilst riding on the public road, by reason of the negligent manner in which the labourer left the soil of the road over the drain.—*Sadler* v. *Henlock.*

*Auction.—Contents of a Lease.*—A lease containing a covenant against carrying on a particular trade was sold by auction; but it was not stated in the conditions that the lease contained such covenant. The purchaser was, however, compelled to complete, because, as he knew he was buying a lease, it was his business to make himself informed of its contents.—*Grosvenor* v. *Green.*

*Meaning of "Ready Money."*—A testatrix being possessed of cash in the house, a balance in a savings bank, and two promissory notes, bequeathed all her "ready money." It was held that the terms "ready money" included the cash in the house and the balance at the savings bank, but not the promissory notes.—*Re Powell.*

## ALTERATIONS OF THE SHOREDITCH WORKHOUSE.

THE Board of Guardians for Shoreditch—a newly constituted body, possessed, under the Poor-law Board regulations, of executive functions formerly accorded to the vestry, and which has heretofore held its deliberations in a committee-room of the Shoreditch workhouse—has determined on such alterations in that establishment as will adapt a portion to its special purposes, and at the same time afford better accommodation to clerks and other officers. For this purpose, the designs of Mr. Jones, architect, of Dalston, have been adopted. The proposed alterations on the principal floor of the Shoreditch workhouse, consist in providing a board-room, to which will be attached a committee-room, a waiting-room, and a suite of clerks' apartments. On the lower floor it is proposed to provide for the relieving officer's department, with every facility for the despatch of business. The workhouse is said to be too small for the accommodation of the inmates.

## SURREY COUNTY LUNATIC ASYLUM COMPETITION.

THE Surrey Lunatic Asylum, at Wandsworth, having become inadequate to accommodate the increasing number of applicants for admission, the Committee of Visitors proposed to apply the present building for the use of females, and to erect a new building for male patients.

With this view they invited four architects, namely, Mr. Taylor, of King-street, Cheapside; Mr. Martin, of Birmingham; Mr. Jarvis, of Trinity-square, and Mr. Henry Currey, of Lancaster-place, to supply them with designs for the proposed building.

The designs were delivered on the 24th of December last, and that marked "Addenda," by Mr. Currey, has been selected by the committee to be recommended to the next Quarter Sessions for adoption.

No premium was offered in this case, but the complimentary sum of 25*l.* was paid to each competing architect.

## THE INVENTORS OF THE LOCOMOTIVE.

IN the review of the book "Who Invented Locomotive Engines," great praise is due to you for the candid spirit you have given to the elucidation of the truth as to the original inventor of locomotive engines. George Stephenson certainly was one of the greatest *promoters*, but not the *inventor*. A mistaken impression is also abroad of his being also the first person who proposed the application of the locomotive engine to railways; and I am surprised that some of those able men who are now living do not contradict the statements in Smiles's book of the "Life of George Stephenson." On referring to parliamentary documents of the proceedings of the Houses of Parliament, I find the first movement commenced in 1822, by a Mr. *James*, who consulted Messrs. George and John Rennie, the engineers, on the practicability of the scheme. They assisted Mr. James with their advice, and he surveyed a line at his own expense from Liverpool to Manchester, which I have no doubt these gentlemen, if called upon, would corroborate. James's line was abandoned for want of sufficient funds. The next account we have of it is in the year 1824, when a Bill was before Parliament, the engineer being Mr. George Stephenson, but which was thrown out in consequence of errors in the surveys and sections. Notwithstanding this failure, the next year a new line was surveyed by

George and John Rennie, the engineers, and carried through both Houses, after a very long discussion and opposition, and passed in March, 1826, by a large majority. Thus was the first railway in England commenced, namely, the Liverpool and Manchester; the promoters of which ought to have their names printed on a monument in letters of gold; and although George Stephenson assisted in promoting these undertakings, he cannot claim, as Smiles's book states, the original invention, as *James* and the *Rennies* appear by parliamentary records to have been *before* him.

A READER.

## PESTIFEROUS SEWERS, BROMPTON.

WHILE the great reform of sewerage is being planned out, it would be well if the Commissioners were to pay a little attention to those by-lanes and courts where the labouring classes are forced to herd together in crowds, which are the more dense just in proportion to the mean character of the houses they occupy.

The best and most fashionable localities of London have their plague-spots and reserves of contagion, where occasionally epidemic disorders rage with virulence, and that amongst those who are least able to contend with adversity. There is, in fact, no quarter free from them; and the evil which cries aloud for redress arises everywhere from defective and ill-contrived sewerage.

There is a part of the suburbs which is at least 30 feet above high-water level: the soil is a dry yellow gravel: the neighbourhood is open to the park and to reserves, still uncovered by buildings, where the main drainage is good, and where there are great facilities for the sanitary protection of every house; and yet here, in the centre of Brompton, we find a most populous street, or rather *cul de sac*, of seventy houses, in the most disgraceful state of neglect as to the sewerage. Every house has on an average six resident families: every kitchen floor has two tenants; and in each of these the stercor arising from the sewage is so abominable, that none unused by habitude to malaria could consent to remain for half-an-hour exposed to the nuisance! This row has been for years noted for the ravages of scarlatina and other disorders, which cling always the closer to misery and indigence.

Could not an inspector of the Board of Health be persuaded to extend his rambles to this hotbed of disease, and to enforce the provisions of the Act now in force for the public security? The hint is given by one who has visited several of these wretched houses, and who, feeling for the helpless condition of the inhabitants, has it not in his power to do more than to claim the attention of those whose duty it is to avert contagion before it is too late.

It need hardly be added, that by cleansing and stopping the drains, and a little attention to the traps, the evil complained of could be lessened.

Q.

## THE WEDGWOOD TESTIMONIAL.

A CROWDED meeting of the inhabitants of the Potteries has just been held at Burslem, the native town of the late Josiah Wedgwood, who resided in it for forty years, the purpose being to promote the object which for the last four or five months has been in course of agitation, namely, to erect a memorial building in his honour, to comprise a school of art, museum, and free library, in Burslem.

The Earl of Carlisle was in the chair, and among those present were the noble lord's sister, the Duchess of Sutherland, and Mr. Child, M.P.; Mr. Hammersley, master of the Manchester School of Art, Mr. E. Wedgwood, Mr. Hitchen, Chief Bailiff of Burslem, and many other gentlemen of influence in the district. Letters favourable to the object in view were read from the Marquis of Stafford, the Duke of Sutherland, the bishop of the diocese, Mr. J. L. Ricardo, Mr. S. C. Hall, and others.

The chairman addressed the meeting with his usual eloquence, and strongly supported the idea of erecting a useful building in Burslem such as that proposed. It seems to me, remarked his lordship, that that character of memorial must be best which would most accurately represent the wishes and reflect the character of the person in whose honour it was designed, and that if he had been a benefactor of his neighbourhood, his country, or his race—if he had led the way in useful inventions, or fostered the arts of progress—then the memorial which was to commemorate his character and achievements ought to be itself of a useful and practical character. And let it be borne in mind that Josiah Wedgwood was born here, in Burslem. I believe his family first came from a village or hamlet not far off, which bore their name; but it was here, close to the churchyard of Burslem, that he was brought up to the business of a potter, and at first performed the work of a thrower. We are told that a lameness in the leg, which limb he afterwards was forced to lose, threw him upon the imitation of fancy models of ornament. Within the present limits of the parish of Stoke he entered into connection with various firms; but it was again in Burslem, at what was termed the Ivy House manufactory, that he set up on his own account, and gave great heed to the bearings of chemistry upon his own line of work, which afterwards led to the honourable distinction of his being made a member of the Royal Society. Here, besides various other articles, he produced what was called the Queen's ware, which supplied caudle-cups to Queen Charlotte upon one of her confinements, and which seems first to have led to his being called into notice and becoming the fashion. And you will not be ignorant that fashion, besides the more indispensable qualities of industry and merit, has yet something to do even with so ancient and useful an art as that of the potter. Soon after came the diligent study which he bestowed upon the imitation of the fabrics of the Italian terra cotta,—admitted, now, I believe, to be the undoubted works of the unrivalled Greeks, but which then conferred the name upon the wares and upon the spot which he chose for his manufactory and home, the classic name of Etruria.

Various other gentlemen addressed the meeting, and appropriate resolutions in favour of the projected "Wedgwood Institute" were cordially passed.

Subscriptions to the amount of upwards of 800*l.* have already been obtained.

There is also a proposal to erect a statue of Wedgwood, as we think we lately mentioned. A meeting in favour of this project has also been held, but at Stoke; so that a rather unfortunate competition for Wedgwood honours has been got up. Even at Stoke, however, this rival scheme has not been so cordially received as was probably expected. The proposal was only carried by the casting vote of the chairman, the dissentients being that moiety of the meeting who were in favour of the rival project at Burslem, which the working classes of the district, it seems, also strongly support.

## THE NINE HOURS MOVEMENT.

As we briefly announced in our last, a public and crowded meeting of the working classes connected with the building trades of the metropolis filled Exeter Hall on Wednesday evening of last week, for the further consideration of the best means of effecting the very desirable object of reducing the hours of labour from ten hours to nine without any reduction of wages.

Mr. Turriff, a bricklayer, was called to the chair.

Mr. Potter, a joiner, in moving the first resolution, made an able speech, in which he spoke in hopeful language as to the prospect of success in the object in view. In recounting what had already been done, he remarked that in course of the present movement they had issued an address to the trade, held district and aggregate meetings, sent two memorials to the employers, asked assistance of the architects, and advertised for a prize essay on the subject. Mr. Potter complained of the unwillingness of the masters to meet them in conference, and stated that they had not yet received the reply of the architects. He did not hesitate, he said, to adopt the principle of urging a reduction of the hours of labour without any reduction of wages, because he conscientiously felt that the present rate of wages was *not* adequate, as every one must feel who knew anything of the homes of his brethren of the building trades, especially where there were wives and families to support. How was it possible, under present circumstances, to lay aside anything for a rainy day, or for self-support in old age? The old horse in the paddock was better provided for than the worn-out operative in this latter respect. Overtime was another great evil against which he set his face; but there was a little inconsistency amongst themselves on this point: while some there were agitating for a nine-hours' day's work, they were actually working twelve! and how were their unemployed brethren to be provided for under such circumstances? Overtime was a curse to society, and the greatest barrier to the elevation of the working man. (?) The employers had said there was now no compulsion upon any man to work more than nine hours a day. Surely, then, ten hours were at least enough, and no one ought even now to work overtime. Overtime was a hinderance, but it could not stop the progress of the nine hours movement. Of the masters they only asked for some consideration of the workmen's interest in future estimates and contracts. The masters had already had six months to meditate on this, and they had not hurried them into it. Men were wiser now-a-days than to regard machinery as an enemy to them, but at least they ought to have some share in the advantage, which should be fairly diffused.

There were various other speakers on the resolutions, which were unanimously adopted, as follows:—

1st. "That it is the opinion of this meeting that the present number of hours devoted to labour are far too many, both for the mental and physical powers of the working classes; that unless a readjustment be devised the health and intelligence of the artisans must become seriously impaired, much to the disadvantage of the general welfare of society."

2nd. "That this meeting is of opinion that, by refusing to receive a deputation from the united building trades, the employers deprived them of the opportunity of showing the justness of their cause, and of bringing about a more friendly feeling, and that they pledge themselves never to cease agitating until they have carried this movement to a successful issue."

3rd. "That we believe the conceding of our request to reduce the working day to nine hours, would not only be the means of affording more certain employment, greater physical comfort, and expanding the intellect of the working classes,—but would in all these things prove a boon to our employers, and a check to the unnatural and ruinous system of competition which is fast reducing the condition of the working mechanic to a state that may ultimately prove destructive of that kindly feeling which ought to exist between the employer and the employed."

Thanks having been given to the chairman, the meeting then separated.

## BUILDERS' BENEVOLENT INSTITUTION.

AT a recent meeting of the directors of this institution it was moved by Mr. Joseph Bird, and seconded by Mr. William Ellis,—"That one male and one female be elected pensioners in May next." At the same time they deeply regretted that the state of their funds would not permit of a larger number being chosen from the numerous applicants (fourteen) for the pensions granted to the distressed aged builders and their widows; and they thought that if it were represented in the journals more immediately connected with the interests of their class, many would be induced either to increase their present help, or induce their friends who have not yet become subscribers (of whom there are thousands connected with the building interests), to come forward at this period when their help is so much needed. The treasurer, Mr. George Bird, who spoke warmly to the point in question, stated that he trusted by their next meeting to be able to inform them that the publicity given to their present position by the insertion of the above facts in the *Builder*, would enable him to present to them a long list of the names of new subscribers and donors, who had (influenced by the statement) forwarded to him at his residence, 38, Edgware-road, their aid at a time when it was so much required; or to the secretary, Mr. A. G. Harris, at the office, in Southampton-street.

## "BOARDS OF HEALTH.—LAYING OUT LAND."

WE have received several communications relative to a letter under this heading in our number for January 22nd, together with a printed report of proceedings at a meeting of the Liverpool Health Committee; from which it appears that the writer of the letter is thought to have intended it to apply to an officer of that borough. Our correspondents, including some of the candidates referred to, indignantly deny the statement as to "douceurs" and "testimonials;" a denial which, so far as we are concerned, is unnecessary now that we know to whom the assertion was intended to apply. The letter complained of was addressed to us by the surveyor to a local board of health on the official paper of the board, and signed with his name. On applying to him for an explanation, he writes: "At this time I could not confidently identify the person who I conjectured made the statement asserted; a statement which I can assuredly say I

did most thoroughly misunderstand, and I regret that such an unguarded, or, as I firmly believe (not being able to prove it), unfounded statement, should have been made by me." We cannot express in sufficiently strong terms our reprehension of such incautious and improper proceedings. A public officer should know better than to trifle with the reputation of another without the clearest evidence.

## PROCEEDINGS UNDER BUILDING ACT.

*Penalty for not giving Notice.*—At the Police-court, Wandsworth, before Mr. Ingham, on the 25th January, Mr. John Scott, builder, of Upper Tooting, was summoned for neglecting to give notice to the district surveyor of Wandsworth and Tooting, Mr. A. J. Hiscocks, previously to his commencing the erection of an additional story to a previously-existing building, 24 feet by 12 feet, at Mr. Booth's, High-street, Tooting.

Mr. Hiscocks stated that the building was within 8 feet of some small cottages, and was a dangerous structure of timber and woodwork, and had been built very adroitly by bringing it on the spot (mostly) already framed.

The builder stated that he did not deem it necessary to give notice, as the lower part had been built under the district surveyor's inspection, and that it was an oversight.

Mr. Ingham asked Mr. Hiscocks if he thought it was done to evade payment of the fee, 15s.?

Mr. Hiscocks said no; and that, as the building would have to be altered in accordance with the rules of the Act, that would be a sufficient penalty.

Mr. Ingham inflicted a penalty of 20s. and 10s. costs.

## Books Received.

*Designs for Factory Furnace and other tall Chimney Shafts.* By ROBERT RAWLINSON, C.E. John Weale, High Holborn.

MR. ROBERT RAWLINSON, well known to our readers as an energetic and successful engineer, and one of the Crimean sanitary commissioners, has amplified the paper "On Chimney Construction," originally read by him before the Liverpool Architectural Society, and published it with twenty-five plates of illustrations in the shape of a handsome folio volume. The pith of the first paper is printed in our volume for 1857,* and in the same volume (p. 231) we gave a group of his designs for chimney shafts, so that our readers know the scope of the work. It is difficult in these times to find unoccupied ground, but Mr. Rawlinson has done so, and has made it his own: his efforts will, we have no doubt, influence the appearance of all lofty shafts hereafter built. We do not accept all his designs: we do not want a chimney shaft to look other than what it is, and some of his, as might be expected (where, for example, the effect of window openings in the sides is given), do so; but many of them are perfectly consistent and irreproachable, and display much skill and taste. The illustrations include views of ventilating towers, elevated water-tanks, and engine and boiler houses, of which Mr. Rawlinson has executed many, and there are at the end three sheets of constructive details, which will be found very useful. As we have before said, in adopting vertical lines in chimneys, great care should be taken to graduate the strength of the walls as the shaft is carried up, so as to secure lightness with elevation. The upper portions should be light, so as to reduce osciliation. Tall chimneys, having heavy cornice finishings, have fallen: a storm of wind sets them in motion, and over they go. There are the ruins of chimneys which were so weighted, and have fallen, near Stoke-upon-Trent, and in other places. The student must not be drawn into any mistake in this respect. A tall chimney must have a secure foundation, a well-arranged shaft, growing lighter in substance as it mounts upwards, and any ornamental finishing must be the lightest possible, to secure the required appearance with strength. Great attention must be paid to the mortar, and to the workmanship. The views are drawn on stone, and printed in tints, by Kell, Brothers; and the book is dedicated to the Liverpool Architectural Society.

*Electricity and the Electric Telegraph, together with the Chemistry of the Stars.* By GEORGE WILSON, M.D. and F.R.S.E. New edition revised. London: Longman and Co. 1858.

THIS is a little volume we have already favourably noticed. It is now re-issued in a revised form, together with a description of the Atlantic cable. The second part of it was a kind of precursor of the rather too famous treatise on the plurality, or rather the non-plurality, of worlds. Dr. Wilson confesses to a sort of partizan feeling in upholding the earth against all comers for its "uniqueness as an abode of living creatures,"—as if we, upon this little spot of mud, were the nonesuches of an infinite universe of spheres and stars. The author's "aim" ought to have been clear of any such questionable, and clannish, earth-conceited feeling, in his dealing with "the chemistry of the stars," of which in truth we know little, or rather nothing, even from that very equivocal source of information, meteoric stones, on which so much is based. The treatise on this subject is suggestive, but that on the telegraph is much more interesting and practical.

* Vol. XV. p. 120.

## Miscellanea.

AIRDS FREE-CHURCH SCHOOL, ARGYLESHIRE.—A school-house and teacher's residence have been erected on the estate of Mr. Robert McPhie, Airds, Argyleshire, from the designs and under the superintendence of Mr. J. Ford Mackenzie. The style is Italian. Airds is within a few miles of Oban, whence steamers start daily during the summer season to visit Iona, Staffa, Glencoe, and Ben-nevis. The cost of the building was about 1,000*l.*; part of the expense being defrayed by a Government grant, and the remainder from Mr. McPhie's private purse.

NORFOLK AND NORWICH ARCHÆOLOGICAL SOCIETY.—The annual meeting of this society has just been held, Sir J. B. Boileau, bart. in the chair. The chairman exhibited some Sicilian vases, showing the difference between them and those of Italy proper, the clay of the latter being much lighter in colour, and not brown or red like the Sicilian. Other objects of interest were exhibited, and the honorary secretary read the usual report, which spoke of the prosperous state of the society and of its doings throughout the year. Office-bearers were then elected or re-elected, and some other proceedings transacted before the meeting closed with a paper from Mr. Planché on a Mould of a Cast.

ACCIDENTS TO PROPERTY AND PERSON.—At an inquest, held before Mr. William Carter, coroner for East Surrey, on the body of William Hobman, aged 29, who carried on business in John-street, Harper-street, New Kent-road; it was proved in evidence that the materials used in the construction of the building which had fallen in the New Kent-road, as already announced, were good, but that a portion had given way from the extreme bad weather which has lately prevailed. A verdict of accidental death was ultimately returned. ——At Woodborough, as a bricklayer was taking out the framework inside an arched cellar he had been building, all the arch gave way, falling upon him with its whole weight. The poor fellow was entirely buried alive under the fallen brickwork, and remained in this perilous state while a boy who was with him ran to get assistance. He was very much bruised.——A new suspension-bridge, recently erected over the Garonne, at Marmande, having been subjected to the usual tests, says *Galignani*, could not withstand the weight, and the mason-work split in several places. The engineers are of opinion that it must be entirely taken down and rebuilt.

THE MANCHESTER LITERARY AND PHILOSOPHICAL SOCIETY.—At the ordinary meeting of this society on January 11th, Mr. W. Fairbairn, F.R.S. the president, in the chair; the president exhibited various specimens of the iron of certain locomotive boilers which had been found to have suffered local corrosion of a dangerous kind, after only a few years' work. These remarkable effects belonged exclusively to locomotive boilers, and had not been noticed in those of stationary engines. They indicated a source of hitherto unsuspected danger. In the lengthened conversation which ensued, some members were of opinion that the phenomena were owing to the vibratory motion of the engine, predisposing certain parts to chemical action. Others thought that currents might exist in uniform directions, by which the part might be kept in that condition, as to cleanliness, most favourable to oxidation. Several members thought that the action was owing to galvanic currents arising from portions of the iron taking the electro-negative condition, which that metal is so apt to assume. Professor Roscoe called attention to the pernicious consequences attending the use of unglazed arsenical green paper hangings; and Mr. Dyer read a paper on "Imponderable Matter, considered as an Element."

THE WELLINGTON COLLEGE.—The college, already fully described by us, was opened by Her Majesty the Queen, on Saturday, the 29th ult. We are asked to mention that the quadrangles and arcades were laid with asphalte (and not with Portland cement), by the Metropolitan Mineral Rock and Seyssel Asphalte Company.

WAKEFIELD CHURCH INSTITUTION BUILDING COMPETITION.—Thirty-one designs were sent in, which the committee reduced to two, between which the competition rested, viz. that with the motto or figures of a Lion and Star, and "Phœnix." After deliberation, the committee awarded the prize of 20*l.* to the former, which, on opening the sealed letter accompanying the plan, proved to be by Mr. A. B. Higham, architect, of Newcastle-on-Tyne. The committee have decided on exhibiting all the plans at the Grammar School, during the whole of next week.

MAP OF JAPAN.—That exceedingly interesting new country (as we may well call it), the island or islands of Japan, which the perhaps rather highly-coloured accounts of it would lead one to look upon as the nearest approximation on earth to the fabled "isles of the blest," forms the subject of a new map, just published by the Queen's geographer, Mr. Wyld, of Charing-cross. This map, we believe, contains information not before given to the public, and, indeed, it is surprising how much appears from it to be already known, not only of the existence and the names of the multitudes of isles and islets of which the group consists, but of the existence and names of even inland towns and districts, rivers, mountains, &c. in the three or four larger islands.

ART-UNION OF LONDON NEW PRINT.—We have before us an engraving by Mr. C. Sharpe, from the interesting original picture by Mr. Frith, R.A. of "Life at the Seaside," the property of Her Majesty, a copy of which, as announced in our advertising columns, every subscriber to the Society for the current year will receive. The plate has cost a very large sum, and is certainly the most important engraving ever produced by any Art-Union. It is not only a work of high artistic merit, combining able treatment and elaborate finish, but from the nature of the subject, truthfully depicting as it does a scene at one of our most popular watering-places, a large amount of character is forcibly shown in it, and we at once recognise the groups found at such resorts. Double the amount of the subscription would not have purchased this engraving if it had been produced in the ordinary way; and we shall be much surprised if there are not at least 15,000 members for the next distribution. Next week subscribers will receive the engraving on paying their guinea, and we advise an early application.

THE WATT TESTIMONIAL.—I was just leaving the British Museum library, where I had admired the splendid edifices of Florence, and especially the admirable campanile of Giotto, when my attention was drawn to the strange tower projected to the memory of Watt, published in your last number. I consider it was a great condescension for you to publish in your valuable paper such a design; but when it is asserted that "some of the Italian campanili have been used as types," I could not refrain from entering my protest against such an assertion. You know, as well as I do, that architecture is a *matter of reason*, and that to *improve will not increase, but save the expense;* and I offer to the managers of the intended tower, and also to the architect himself, to convince them of the verity of what I assert in the name of the Italian campanili. If we are not able to surpass our predecessors, we must not do worse than they did. Considering your paper is a tribune for the architecture—improvement, I hope you will publish the letter of yours truly—HECTOR HORBAU.

DEATHS FROM OPEN DITCHES.—Two children, who dwelt in a cottage, at Westbourne, in West Sussex, within a few feet of an open ditch, into which several cottages drained, were taken ill and died, the cause of death having been testified by the parish medical officer to have been, in his opinion, the offensive sulphuretted hydrogen, which emanated from the open drain, and which was so disgusting, that he could not remain in the room at the back of the cottage, which faced the drain or ditch, though divided from the cottage by a wall. A coroner's inquest was held, and the verdict of the jury, after much deliberation, was, "That the children died at the house of their father; that at the back, and within 10 feet of such house, was an uncovered drain in an offensive state; but whether the deceased died from inhaling *sulphuretted hydrogen gas*, or from natural causes, we are unable to determine."

THE WOOLWICH WORKMEN.—The discharge of workmen ordered to take place at the Royal Arsenal, at Woolwich, has been to a considerable extent countermanded.

INSTITUTE OF BRITISH ARCHITECTS.—At the next ordinary meeting, to be held on the 7th instant, the following paper will be read:—"Various matters connected with St. Paul's Cathedral," by Mr. F. C. Penrose, Fellow.

STRENGTH OF MATERIALS.—On Monday and Tuesday last a series of experiments were made at the Testing House, Woolwich dockyard, upon small blocks of stones, slates, brick, cements, mortars, and wood, for the purpose of ascertaining the resistance of those materials to pressure. The experiments were conducted by Mr. George L. Purchase, architect, at whose service the testing apparatus was placed by the Lords of the Admiralty.

CHESS AND DRAUGHTS FOR THE POCKET.—There has been submitted to us a little box, about 4 inches square, containing the above games combined in one. A folding board, in black and white squares, serves to place flat chessmen, the characters stamped in gilt on dark purple and white grounds. By inverting these, draughts are obtained. The whole goes easily into the pocket, and may be obtained for a few postage-stamps. It is a very good notion.

LONDON INNS.—That ancient and once thronged hostelry, the Swan with Two Necks, as it has been called in modern times, is now in course of demolition, and by the time this is in print that rather quaint-looking building will have been levelled with the ground. For some time past the front of this old inn, which was once a well-known retreat for travellers, has presented a sadly neglected and weather-beaten appearance. It had become necessary to shore the walls; the windows were neglected, cracks appeared in the stucco which had been vainly applied in the hope of making the Swan in Lad-lane correspond with the new and stately structures which have been raised around it. For some time past the courtyard has been occupied as a station for railway parcels.

"AUTHORS OF THE AGE."—Our anticipations as to the success of Mr. Carter Hall's lectures on this subject, his written portraits of great men and women, were more than fulfilled on Friday, the 28th, when Willis's Great Room, King-street, St. James's, was filled with a brilliant audience, including the Lord Mayor, and a large number of eminent artists. Possessed of a good voice and manner, over the former of which he has considerable power of modulation, Mr. Hall is enabled to convey his opinions and remarks clearly and effectively. The second lecture will be given this, Friday, evening, the 4th, and the course will be repeated on the 7th and 14th.

BUNNETT'S FLOOR.—At page 55, is the description of a patented fire-proof floor, accompanied by a diagram. It appears to me that it might be improved by the joints between each hollow brick, each taking their bearing upon the one between it and the retaining wall, although the arch is tied in by the iron rods. My view is, that the joints should be the reverse way at each side (as in an arch, however flat), and should finish with a key brick. The same mould will do; it is only to turn each brick round the reverse way for the two sides, and finish with a line of key bricks, as suggested along the centre.—J. B. W.

SMALL PARCELS POST.—At the Society of Arts, on the 26th January, Mr. Nicholay in the chair, Mr. Peter Graham introduced for discussion the report of the committee appointed by the Society to consider the subject of "A Small Parcels Post." The report tended to show that the present rate of postage on parcels amounted to a prohibition, except in very few cases; and that the private means of transmission were expensive and uncertain. The Post-office, however, already had an agency established and paid for, which might be called a general porterage for the delivery of letters, and which would render a separate porterage for small parcels unnecessary over a large portion of the kingdom. The committee was therefore of opinion, that, at a payment of 4d. for a parcel of 1 lb. weight, the post might do at a profit that which private employers could not do for a very much larger sum. A discussion ensued, in which Messrs. Alderman Mechi, W. Hawes, Laurence, Salomons, Harry Chester, E. Chadwick, Sir Thomas Phillips, Edwards, Tennant, W. Brooks, and the chairman took part.

PLACARD BOARDS.—Sir: Pray lift your voice against that abominable eyesore, the placard-board at the foot of Waterloo-bridge (Middlesex side), a disgrace to the authorities of the bridge and to our English (want of) taste.

A LOVER OF ARCHITECTURAL PROPORTIONS.

GAS IN DUBLIN.—A rival gas company has been started in Dublin, under the designation of "The Independent Gas Consumers' Company," and the requisite buildings are already commenced. The company promises to supply better gas than the original company, at 3s. 6d. per 1,000 cubic feet, free from meter rent, and thereby save the consumers 50,000*l.* per annum. Mr. Flintoff is the promoter and secretary.

DRAINAGE.—Sir: I beg to submit the following suggestion,—that it would be a useful provision in the majority of contracts for tubular drains, in cases where the soil is clayey, to stipulate that the trenches should be filled in to a certain depth, say 1 foot, with hard materials, as ballast or gravel, before the excavated clay be thrown back again; the purpose being to secure a system of "rumbling drains" that will take away the excessive moisture which is apt to permeate such a soil, arising from rain or other causes, and to which the very efficiency of the glazed tubes in respect to their being water-tight must hinder their giving vent.—G. M.

OPENING OF A NEW MANUFACTORY OF DRY GAS METERS.—The gas meter factory in the Kingsland-road has been opened, under the auspices of the Lord Mayor and a party of gentlemen interested in the manufacture and supply of gas. The buildings have been carried out from designs, and under the superintendence, of Mr. William Lee, architect. The factory contains three floors, of an area of 8,000 superficial feet, each floor being supported by cast-iron columns. They are lighted on all sides by Rogers's patent glass, and are ventilated by flues formed in the external walls running up to the roof. The whole is constructed with a view to the health and comfort of the men, and is divided into several departments of case constructing, leather cutting, index making, and brass finishing and completion—affording altogether accommodation for 200 and odd workmen. The proving and experimenting room, 64 feet by 20 feet, is lighted by a lantern, and is 20 feet high. The closets, &c. are lined with Rufford's patent enamelled bricks. The offices are next the Kingsland-road, and have a frontage of about 100 feet. The design is in the Italian style, executed with red and white Suffolk bricks, with stone dressings and ornaments. In the principal archway a colossal head of Old Time forms the keystone, and a corbel for supporting a clock, on either side of which are figures of Morning and Night, and above, a group comprising Childhood, Manhood, and Age. These have been sculptured by Mr. R. Jackson, of Maida-hill, from designs of the architect.

THE DRINKING-FOUNTAIN MOVEMENT.—The town of Workington has been presented by Mr. Charles Lamport with an ornamental fountain of polished red granite, which the waterworks trustees of the town have agreed to supply with water. ——Messrs. Alder Dunn and Co. have intimated their intention to present the town of Newcastle-on-Tyne with four drinking-fountains, of polished Aberdeen granite, which they propose to erect at their own cost.——Plans and specifications for the fountain which is to be erected in the Market-square of Warwick, in commemoration of her Majesty's visit to that town, will shortly be ready; and on their completion tenders are to be advertised for. It is probable that the cost of the work will amount to 200*l.*——The *Manchester Courier* speaks of having inspected a specimen drinking-fountain at the marble works of Messrs. Patteson, being one of a number intended for erection in various parts of the city by Mr. Robert Barnes. The fountain consists of polished Aberdeen granite and bronze, and only projects from a wall 13 inches. A large shield-shaped slab of highly polished granite forms the upper portion of the fountain, and from its centre projects a conventionalized human head, in bronze, ornamented with ivy leaves and other decoration, out of the mouth of which flows the water, almost perpendicularly, so that there is no splashing. The liquid falls into a small basin, and thence into a larger one, whence it passes off by two openings. Drinking cups of galvanized iron are suspended at the sides by chains of the same metal. The fountains will be placed at a convenient height for children, but means will be taken to prevent them playing with the water. There is an inscription, recording that the fountain was "Presented, A.D. 1859, by Robert Barnes." It is intended to erect this specimen fountain beneath the railway arch in Oxford-street. Mr. Barnes has offered to erect as many of these fountains as the populous necessities of the city may require. A suggestion has been made that, by the use of a ball-tap, the lifting of the drinking-cups might be made to turn on the water, which would then not be wasted.

## TENDERS.

For works at Offington House, near Worthing. Mr. H. Clutton, architect. Quantities supplied by Mr. Crocker:—

| | |
|---|---|
| I'Anson | £2,486 0 0 |
| Foster | 2,036 0 0 |
| Bushby | 2,029 0 0 |
| Myers | 1,999 0 0 |
| Macey | 1,797 0 0 |
| Pritchard and Son | 1,740 0 0 |

For alterations, No. 67, Cheapside, for Messrs. Roberts and Co. Mr. Thos. Burton, architect:—

| | |
|---|---|
| Condor | £2,020 0 0 |
| Piper | 1,833 0 0 |
| Brass | 1,829 0 0 |
| Ring and Stanger | 1,805 0 0 |
| Oxford and Co. | 1,800 0 0 |
| Lawrence and Sons | 1,780 0 0 |
| Sargent | 1,690 0 0 |
| Downs (accepted) | 1,620 0 0 |

For building Detached Cottage, at Dorking. Mr. Wm. G. Bartlett, architect:—

| | |
|---|---|
| Clarke, Westcott | £541 14 3 |
| Lynn and Dudley, Dorking | 531 0 0 |
| F. and F. J. Wood, London | 520 0 0 |

For the partial rebuilding of Crown Tavern, Vinegar-yard, Drury-lane, for the Company of Proprietors of Drury-lane Theatre. Messrs. Nelson and Innes, architects:—

| | |
|---|---|
| Knight | £970 0 0 |
| Greig | 895 0 0 |
| Ashfield | 861 10 0 |
| Carter | 870 0 0 |
| Soward | 859 10 0 |
| Rider | 840 0 0 |
| Hill and Son | 815 0 0 |
| Hind and Alldred | 761 0 0 |
| Patman | 685 0 0 |
| Glenn | 669 0 0 |
| Todd, Brothers | 648 0 0 |

For new Shop Front, &c. 250, Regent-street, for Mr. Wrentmore. Mr. Wm. Harris, architect:—

| | |
|---|---|
| Foxley | £395 0 0 |
| S. S. Wilson (accepted) | 375 0 0 |

For the Preparatory Commercial School, Bedford. Mr. J. Horsford, architect. Quantities supplied by Mr. Hovenden:—

| | Ancaster stone. | Deduct for Bath stone. |
|---|---|---|
| Downes | £2,160 0 0 | £46 0 0 |
| F. and T. Wood | 2,079 0 0 | 20 0 0 |
| G. Myers | 2,000 0 0 | 39 0 0 |
| M'Lennan and Bird | 1,988 0 0 | 40 0 0 |
| G. Heath | 1,945 0 0 | 20 0 0 |
| A. Mault | 1,860 0 0 | 7 0 0 |
| W. Webster | 1,819 0 0 | —— |
| H. Spencer | 1,794 0 0 | 12 0 0 |
| T. Lawson and Joy | 1,720 0 0 | 11 0 0 |
| T. Harvey | 1,576 0 0 | 26 0 0 |
| G. Cooper | 1,558 10 0 | 10 0 0 |
| Conquest | 1,550 0 0 | 11 0 0 |
| R. Young | 1,498 0 0 | 21 0 0 |
| Lindley, Firm, and Co. | 1,431 0 0 | —— |
| Thos. Reynolds | 1,396 0 0 | 9 0 0 |
| G. Thompson | 1,389 0 0 | —— |
| J. Houghton | 1,388 18 0 | 11 0 0 |
| W. Freshwaters | 1,386 0 0 | 11 0 0 |
| E. Masters | 1,238 0 0 | 11 0 0 |

For first portion of restoration of St. Peter's Church, Thanet, under Mr. Joseph Clarke, diocesan architect:—

| | Pitch Pine. | C. Deals. | Old Materials. | Lead cwt. |
|---|---|---|---|---|
| | £ s. d. | £ s. d. | £ s. d. | s. d. |
| Ringham .. | 1,397 0 0 | 1,297 0 0 | 77 0 0 | 18 0 |
| Lancefield .. | 1,423 10 0 | 1,338 0 0 | 35 0 0 | — |
| Wilson | 1,441 0 0 | 1,361 0 0 | 25 0 0 | 18 0 |
| Denne | 1,450 0 0 | 1,375 0 0 | 45 0 0 | 18 0 |
| Smith | 1,452 4 0 | 1,378 0 0 | 46 0 0 | 19 0 |

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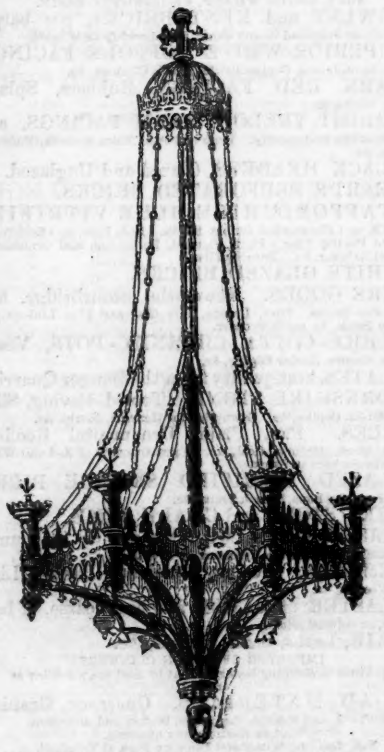

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